

**CHAIRE INDUSTRIELLE  
CRSNG / HYDRO-QUÉBEC  
EN HYDROLOGIE STATISTIQUE**

**Diffusion des résultats**

**CHAIRE INDUSTRIELLE  
CRSNG / HYDRO-QUÉBEC  
EN HYDROLOGIE STATISTIQUE**

**Diffusion des résultats**

**Rapport rédigé  
Suite à la tournée canadienne  
effectuée du 8 au 14 novembre 1996**

**par**

**Bernard Bobée  
Taha B.M.J. Ouarda  
Peter F. Rasmussen**

**Institut national de la recherche scientifique, INRS-Eau  
2800 rue Einstein, Case postale 7500, SAINTE-FOY (Québec) G1V 4C7**

**Mars 1997**

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# **1 INTRODUCTION**

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Pour donner suite aux recommandations du Comité d'évaluation de la Chaire en Hydrologie Statistique CRSNG / Hydro-Québec (cf. Appendice A) concernant la diffusion des travaux de la Chaire et l'établissement de partenariat à l'échelle nationale, nous avons organisé une tournée canadienne qui devait conduire l'équipe de la Chaire dans plusieurs régions du Canada. Cette activité a été réalisée au cours du mois de novembre 1996 grâce aux fonds mis à la disposition de la Chaire par le CRSNG et l'INRS ainsi qu'avec le support d'Hydro-Québec.

D'autres activités ont aussi été organisées dans le cadre de la diffusion des travaux de recherche effectués au sein de la Chaire, à l'échelle canadienne et internationale. Parmi ces activités, on doit souligner l'organisation d'une session entière consacrée aux travaux de recherche de la Chaire à l'occasion du 49<sup>e</sup> Congrès annuel de l'Association canadienne des Ressources hydriques, qui a eu lieu à Québec du 26 au 28 juin 1996 (cf. Annexe A). Cette session, au cours de laquelle les travaux de recherche réalisés dans le cadre de la Chaire ont été présentés, a réuni de nombreux experts canadiens francophones et anglophones, et a été accompagnée d'un service de traduction simultanée. La session a été présidée par monsieur Michel Slivitzky, ancien directeur de l'INRS-Eau et maintenant professeur émérite à l'INRS-Eau.

Par ailleurs, au cours des deux dernières années, les membres de notre équipe ont présenté les travaux réalisés dans le cadre de la Chaire dans plusieurs congrès internationaux.

## **1995**

- 3<sup>e</sup> Rencontres hydrologiques franco-roumaines, Montpellier (France), 6-8 septembre.
- Conférence internationale UNESCO en l'honneur du professeur Jacques Bernier, Paris (France), 11-13 septembre.

- 3<sup>rd</sup> International Conference on Computer Methods and Water Resources (CMWR 95), Beirut (Libanon), 25-28 septembre.

**1996**

- 16<sup>th</sup> Annual Hydrology Days (AGU), Fort Collins (Colorado, USA), 15-19 avril.
- 6<sup>th</sup> International Conference HYDROSOFT 96: Hydraulic Engineering Software, Penang (Malaysia), 10-12 septembre.
- 11<sup>th</sup> International Conference (AIENG 96) on the Application of Artificial Intelligence in Engineering, Clearwater (Florida, USA), 11-13 septembre.
- International Conference on Water Resources and Environment Research: Towards the 21<sup>st</sup> Century, Kyoto (Japan), 29-31 octobre.

**1997 (conférences acceptées pour présentation)**

- 7<sup>th</sup> Annual Hydrology Days (Colorado State, Fort Collins, USA), 14-18 avril.
- 5<sup>th</sup> Scientific Assembly of the International Association of Hydrological Sciences (Rabat, Maroc), 23 avril - 3mai.
- IX World Water Congress of the International Water Resources Association (Montréal) 1<sup>er</sup>-6 septembre.
- EWRA Conference on Operational Water Management (Copenhagen, Denmark), 3-6 septembre.

## **2 FINANCEMENT**

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L'organisation de la tournée canadienne a été assurée grâce au support du CRSNG, d'Hydro-Québec et de l'INRS. Le CRSNG, qui attache une haute priorité à la diffusion des résultats de recherche, a accordé un montant de 3 000 \$ pour défrayer une partie des coûts de la tournée. L'INRS, de son côté, a alloué à la Chaire une subvention équivalente de 3 000 \$ à partir du Fonds institutionnel de recherche (FIR) de l'INRS. Hydro-Québec a supporté l'initiative de la Chaire en mettant à notre disposition un conseiller de la division Relations gouvernementales et institutionnelles pour une période d'environ deux semaines, ce qui correspond à une contribution financière de l'ordre de 3 000 \$. Ainsi, le Dr René Roy (qui a obtenu son doctorat à l'INRS-Eau, en 1993, dans l'équipe de la Chaire) a été impliqué dans l'organisation de l'atelier de Toronto où il a représenté Hydro-Québec et a agi en tant que président de session. Notre équipe a également essayé, sans succès, d'obtenir des contributions de l'Association d'Études canadiennes, de la Société canadienne de Génie civil, de l'Association canadienne des Ressources hydriques, et de l'Association Électrique canadienne. Les documents reliés à l'organisation financière de la tournée sont présentés dans l'annexe B. Nous présentons également, dans cette annexe, un bilan financier.



### **3 ATELIERS**

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- **Atelier de Montréal**

Cet atelier a eu lieu le vendredi 8 novembre 1996, à l'auditorium d'Hydro-Québec, situé au siège social de la compagnie à Montréal (75 boulevard René-Lévesque Ouest). La session de présentations a été organisée à l'occasion de la réunion bi-annuelle du Comité aviseur de la Chaire et a été présidée par le professeur Nassir El-Jabi, directeur de l'École de Génie à l'Université de Moncton au Nouveau-Brunswick, et président du Comité visiteur de la Chaire. Ainsi, près de 40 experts québécois ont pu assister aux présentations des travaux de recherche effectués dans le cadre de la Chaire.

Après une introduction générale du titulaire de la Chaire, le professeur Bobée, chaque projet a fait l'objet d'une présentation par le chargé de projet de l'INRS-Eau et le chargé de projet d'Hydro-Québec. Ces présentations ont été suivies d'une période de questions et de discussions. À cette occasion, des copies du rapport final des projets C1 et C2 de la Chaire ont aussi été distribuées.

Le programme de la session organisée à Montréal, le 8 novembre 1996, ainsi qu'une copie de la lettre d'invitation et la liste des participants sont présentés dans l'annexe C.

- **Atelier de Toronto**

L'équipe de la Chaire a pris des contacts avec le Dr Ion Corbu d'Hydro Ontario pour l'organisation d'une visite à Toronto. Le Dr Corbu avait exprimé un grand intérêt pour collaborer à l'organisation d'un atelier de la Chaire à Toronto et avait indiqué sa disponibilité pour l'organisation matérielle de la visite. Le Dr Paul Pilon d'Environnement Canada et le Dr René Roy d'Hydro-Québec ont aussi participé à l'élaboration de cet atelier.

Les présentations ont eu lieu le mardi 12 novembre 1996, à la salle de conférences du siège d'Hydro Ontario à Toronto (700 University Avenue). Plus de 20 personnes représentant Hydro Ontario, les universités ontariennes, les ministères de la province de l'Ontario, ainsi que des compagnies d'ingénieurs conseils ont assisté aux présentations. L'atelier a été présidé par le Dr René Roy, et a été suivi d'une session de discussion au cours de laquelle le Dr Ion Corbu et le Dr Paul Pilon ont agi comme modérateurs.

Les présentations des projets de la Chaire, ainsi que d'autres études effectuées par l'équipe de la Chaire en collaboration avec la compagnie Alcan, le ministère de l'Environnement et de la Faune du Québec, et Environnement Canada ont été faites par le professeur Peter F. Rasmussen et le Dr Taha B.M.J. Ouarda de la Chaire. Une démonstration du logiciel *AJUST*, développé par l'équipe de la Chaire, a aussi été effectuée. Des copies de plusieurs articles et rapports de projets (en langue anglaise) ont été distribuées aux participants.

Le programme de la session organisée à Toronto ainsi qu'une copie de la lettre d'invitation et de la liste des participants sont présentés dans l'annexe D. Les copies des fiches de commentaires remises par les participants à la fin de la journée sont également présentées dans cette annexe.

- **Atelier de Vancouver**

Le Dr William Q. Chin de B.C. Hydro nous a été d'une grande aide pour l'organisation de l'atelier de Vancouver. Le professeur Younes Alila de l'Université de la Colombie-Britannique a aussi participé à l'organisation de cet atelier. La présentation a eu lieu le jeudi 14 novembre 1996, à l'auditorium central de B.C. Hydro (6911 South Point Drive à Burnaby dans la banlieue de Vancouver). Plus de 35 personnes représentant B.C. Hydro, les universités de la Colombie-Britannique, ainsi que différents organismes gouvernementaux et privés ont participé à l'atelier. Des participants se sont aussi déplacés

de l'état de Washington, au nord-est des États-Unis, pour assister à l'atelier.

La présentation a été présidée par le Dr Vit Klemeš, alors que le Dr W. Q. Chin a agi comme modérateur de la session de discussion. Le programme de la journée, très similaire à celui de la session organisée à Toronto ainsi qu'une copie de la lettre d'invitation et la liste des participants sont présentés dans l'annexe E. Des copies des fiches de commentaires remises par les participants à la fin de la journée sont également présentées dans cette annexe.



## **4 CONCLUSIONS**

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L'organisation de cette tournée, qui faisait suite aux recommandations du Comité visiteur, a été extrêmement bénéfique à plusieurs titres :

1. En permettant une plus grande diffusion des travaux de recherche réalisés dans le cadre de la Chaire en Hydrologie statistique;
2. En contribuant à l'établissement de partenariat de la Chaire avec les autres grandes compagnies hydroélectriques du Canada et des collègues d'autres universités;

À cet égard, nous envisageons avec l'appui du Dr René Roy de donner suite à ces visites en organisant à Montréal en 1997 une réunion avec des représentants d'Hydro Ontario et de B.C. Hydro.

3. En créant un forum pour l'échange d'idées au sein de la communauté hydrologique du Canada, et en particulier entre les membres des universités et des institutions de recherche d'une part, et les praticiens d'autre part;
4. En assurant le rayonnement d'Hydro-Québec auprès de ses partenaires électriciens du Canada, en particulier des provinces anglophones du Canada; et
5. En permettant à la Chaire de profiter des commentaires et suggestions de spécialistes canadiens des autres compagnies hydroélectriques.

Ainsi la validation des débits à l'échelle horaire a été identifiée comme étant l'une des préoccupations des chercheurs et des ingénieurs de B.C. Hydro.

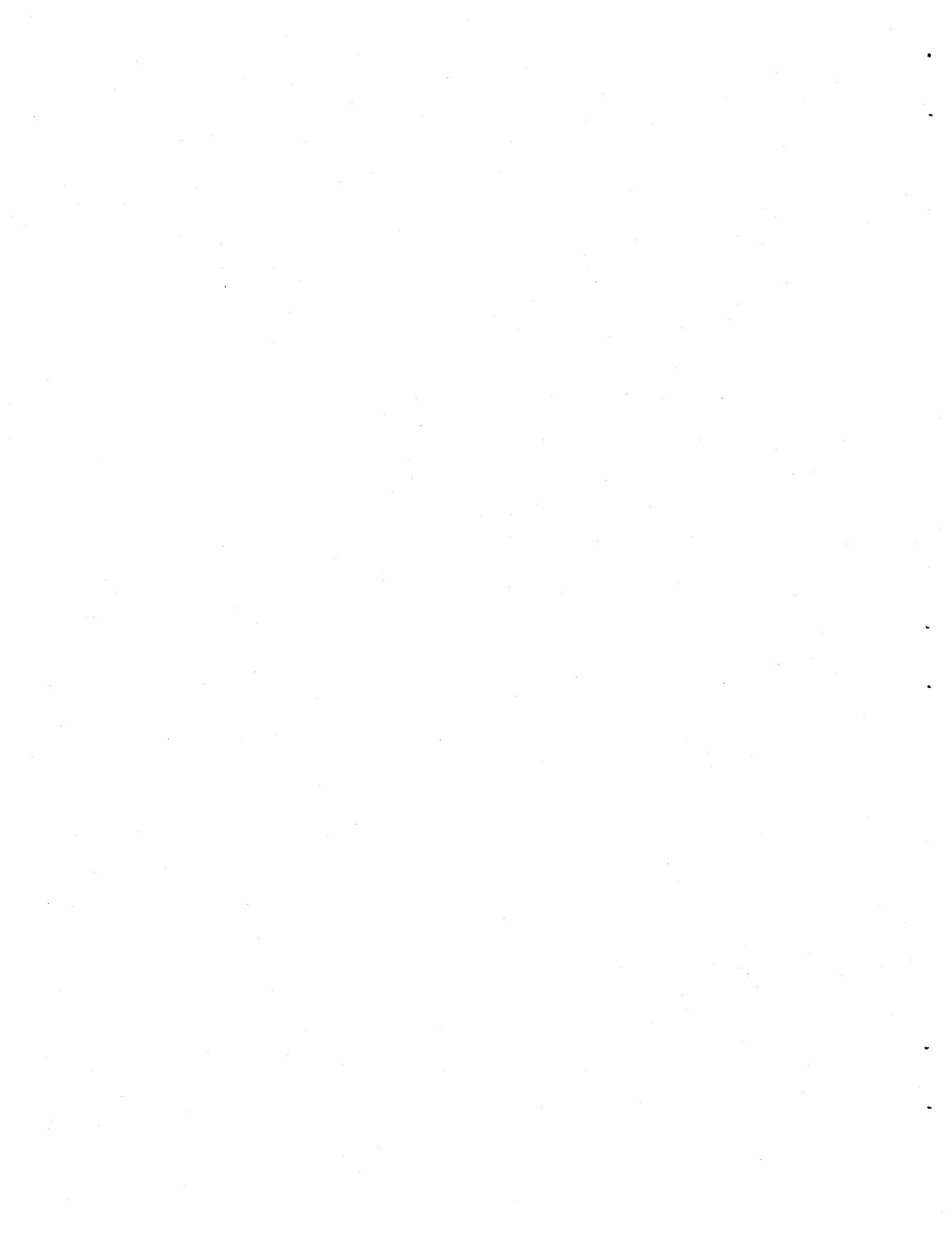
En effet, les commentaires reçus durant la tournée nous ont permis de prendre connaissance des besoins des autres compagnies dans le domaine de l'hydrologie statistique, et nous permettent de mieux planifier la demande de renouvellement pour une nouvelle période quinquennale que nous préparons actuellement. Ces visites nous ont aussi permis de prendre connaissance des travaux réalisés ailleurs au Canada, ainsi que des problèmes concrets qui se posent dans notre domaine à l'échelle nationale.

Finalement, nous devons souligner que la réalisation et le succès de ces visites sont dus, en grande partie, au support financier reçu de la part du CRSNG, de l'INRS et à la collaboration du D<sup>r</sup> René Roy d'Hydro-Québec, ainsi qu'à l'aide matérielle offerte par les D<sup>r</sup> Ion Corbu et Paul Pilon à Toronto, le D<sup>r</sup> W. Q. Chin, le professeur Younes Alila et le D<sup>r</sup> Vit Klemeš à Vancouver.

## **APPENDICE A**

### **Recommandations du Comité visiteur**

**(5 avril 1995)**





Natural Sciences and Engineering  
Research Council of Canada

350 Albert Street  
Ottawa, Canada  
K1A 1H5  
Facsimile: (613) 992-5337

Conseil de recherches en sciences  
naturelles et en génie du Canada

350, rue Albert  
Ottawa, Canada  
K1A 1H5  
Télécopieur: (613) 992-5337

663-004/92

Le 5 avril 1995

Monsieur Bernard Bobée  
Professeur  
INRS-Eau  
Université du Québec  
Complexe scientifique  
2700, rue Enstein  
Ste-Foy (Québec)  
G1V 4C7

Objet : Commentaires reçus concernant le rapport d'étape de 18 mois

Cher Monsieur Bobée,

J'attache à ma lettre des copies des commentaires reçus des membres du comité visiteur après lecture de votre rapport d'étape de 18 mois. Vous remarquerez sans doute que ceux-ci sont en grande partie élogieux. Je demeure curieux néanmoins de recevoir votre réponse aux suggestions faites quant à la diffusion des résultats de la chaire à l'aide d'un colloque de deux jours et le développement de relations de partenariat dans les différentes régions du Canada.

Je vous prie d'accepter mes félicitations pour un début de chaire des plus prometteurs et j'espère que vous n'hésitez pas à communiquer avec moi si nécessaire.

Bien à vous,

Pierre-Richard Gaudreault, Ph.D.  
Programme de partenariats de recherche

Téléphone (613) 992-7106  
Télécopieur (613) 992-5337  
Courrier électronique prg@nserc

p.j.

Canada

**Subject: Industrial Research Chair Program in Statistical Hydrology (Prof. Bernard Bobee)**  
**INRS-Eau and Hydro Quebec.**

Dear Dr. Gaudrault:

I have reviewed the documentation received with your letter of January 5, 1995. At your request, I'm providing my comments, as follows:

1. Prof. Bernard Bobee can be confirmed again as an undisputable international authority in Statistical Hydrology. His direct involvement in directing the C1-C6 and P4 projects, represents a major benefit to the Canadian community of hydrologic scientists and water resources engineers.
2. INRS-Eau is developing a powerful team of young scientists specialised in Statistical Hydrology. The large number of papers published by the members of the INRS-Eau team represent an undeniable proof of their growing capability.
3. The INRS-Eau team is complemented by a team from Hydro Quebec formed by engineers with significant practical expertise in the operation of large hydroelectric / water resources projects.

4. The joint INRS-Eau /Hydro Quebec teams have regular project meetings / working sessions. The Stage 1 Report shows that these teams work well, and advance their research according to an established schedule which clearly indicates milestones and target completion dates.
5. Internationally recognised experts such as Prof. Jacques Bernier (France), Dr. Lucien Duckstein (Arizona University), Dr. Jose Salas (Colorado State University), and Jerry Stedinger (Cornell University) are being consulted for their opinion on the appropriate methodology or tool to be developed or used in conjunction with the C1-C6 and P4 projects.
6. The INRS-Eau / Hydro Quebec joint project teams also benefit from the involvement of faculty members from other Canadian Universities such as Ecole Polytechnic of Montreal, University of Ottawa, McGill University of Montreal, and University of Moncton.
7. I wish to take this opportunity to renew my support to the INRS-Eau / Hydro Quebec research partnership in Statistical Hydrology.
8. Although the Stage 1 Report is very informative, it does not include enough information to allow an understanding of the actual activities being conducted in respect to each project. Consideration should be given to organizing a 2-day presentation of the C1-C4 and P4 projects within the following 6 months.

Monsieur Pierre-Richard Gaudreault, Ph.D.  
Programme de partenariat de recherche  
CRSNG  
350, rue Albert  
Ottawa, Ontario  
K1A 1H5

Objet: Chaire industriel en hydrologie statistique  
INRS-EAU, Université du Québec - Hydro-Québec

Monsieur,

La présente fait suite à votre lettre du 5 janvier 1995 relative à la chaire d'étude en hydrologie statistique.

Le rapport présenté par le professeur Bernard Bobée étaie le développement de la chaire lors de ses premiers dix mois. En général, M. Bobée a fait un très bon travail avec une organisation efficace du déroulement de la recherche en collaboration avec Hydro-Québec. L'effort de démarrage est appréciable et le système de suivi mis sur place est certainement fonctionnel. La qualité et la quantité des sous projets déclenchés lors de cette première étape sont satisfaisantes et je suis convaincu que la chaire est dans une situation de fonctionnement convenable.

Néanmoins, j'aimerais apporter quelques remarques qui, je l'espère, aideraient la chaire à mieux s'épanouir:

- 1 - Le Comité lors de sa visite d'évaluation recommandait à "... l'INRS et Hydro-Québec à chercher à étendre le partenariat aux autres grands utilisateurs d'hydrologie au Canada..."; or, la chaire est encore cloisonnée au Québec et l'AQTE n'est pas le forum idéal pour diffuser la recherche en hydrologie statistique à travers le Canada. Ainsi, je recommande à la chaire de développer des relations de partenariat avec les utilisateurs potentiels (universités, ministères, compagnies d'électricité, industrie....) dans les différentes régions du Canada.

Monsieur Pierre-Richard Gaudreault

Page 2

Le 31 janvier 1995

- 2 - La formation des chercheurs dans le cadre de la chaire est satisfaisante, mais elle peut être plus développée. Ainsi, un recrutement est nécessaire surtout au niveau du 3<sup>e</sup> cycle et au post-doctorat.
- 3 - La chaire a pu recruter un des deux postes de professeurs associés lors de cette période. Le second poste sera un atout, à ce moment, pour compléter l'équipe et entreprendre le programme au complet qui doit se terminer dans les trois prochaines années.

Finalement, j'aimerais féliciter le professeur Bobée pour son travail d'organisation et de développement de la chaire en hydrologie statistique. Aussi, au risque de se répéter et malgré un réseau international de collaborateurs, la chaire a certainement un travail de partenariat à faire au Canada en général et à l'ouest du Canada en particulier.

Veuillez agréer, Monsieur, mes salutations les meilleures.

Dear Dr. Gaudreault:

Subject:      Review of Chair in Statistical Hydrology, Université du Québec, with Hydro-Québec

I have reviewed all the material sent me regarding the work to date by Prof. Bernard Bobée. At this early stage in the development of the Chair, I do not see any problems currently or in the near future.

The material provides an adequate amount of detail and clearly shows the close collaboration that Prof. Bobée is having with Hydro-Québec. The letter signed by Mr. Gilbert Neveu of Hydro-Québec is further substantiation of this close collaboration and to the quality of work that is on-going.

The report by Prof. Bobée touches on the direction of work, the relative amounts of each sub-project that have been completed to date, linkages with external experts, internal collaboration, and the composition of his research team and the number of graduate students involved in research. The report does not provide sufficient details to provide an in-depth review, but as I mentioned in my opening statement, everything appears in order. In further reviews, it would be beneficial if Prof. Bobée would link the research publications to each of the projects. Possibly some of the critical publications could be submitted for the reviewer's perusal, especially as several manuscripts have not yet been published. If an in-depth review is required, I would strongly recommend the use of a site visit.

If you should have any further questions or require clarification of some of the points raised above, please do not hesitate in contacting me.

**OBJET:** Poste de professeur-chercheur industriel en hydrologie statistique (titulaire: Bernard Bobée)  
Université du Québec avec Hydro-Québec

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Monsieur,

En réponse à votre lettre du 5 janvier 1995, j'ai examiné en détail le contenu du rapport d'étapes pour la période du 1<sup>er</sup> mai 1993 au 1<sup>er</sup> novembre 1994, préparé par le professeur Bernard Bobée, concernant la chaire Hydro-Québec - CRSNG en hydrologie statistique, voici mes commentaires:

- quatre projets sur six prévus dans la chaire ont débuté et ont permis à ces deux organismes de définir les objectifs et la problématique; on note que quelques résultats intéressants sont obtenus de ces projets.
- la collaboration entre le personnel technique de Hydro-Québec et les chercheurs de l'INRS-eau est très bonne et harmonieuse.
- on s'attend que les projets C6 portant sur le risque et la fiabilité en hydrologie et C5 (régionalisation des événements hydrologiques extrêmes) débutent cette année comme prévu dans la chaire avec des objectifs et des orientations bien définis, en raison de l'importance et les retombées économiques de ces projets.

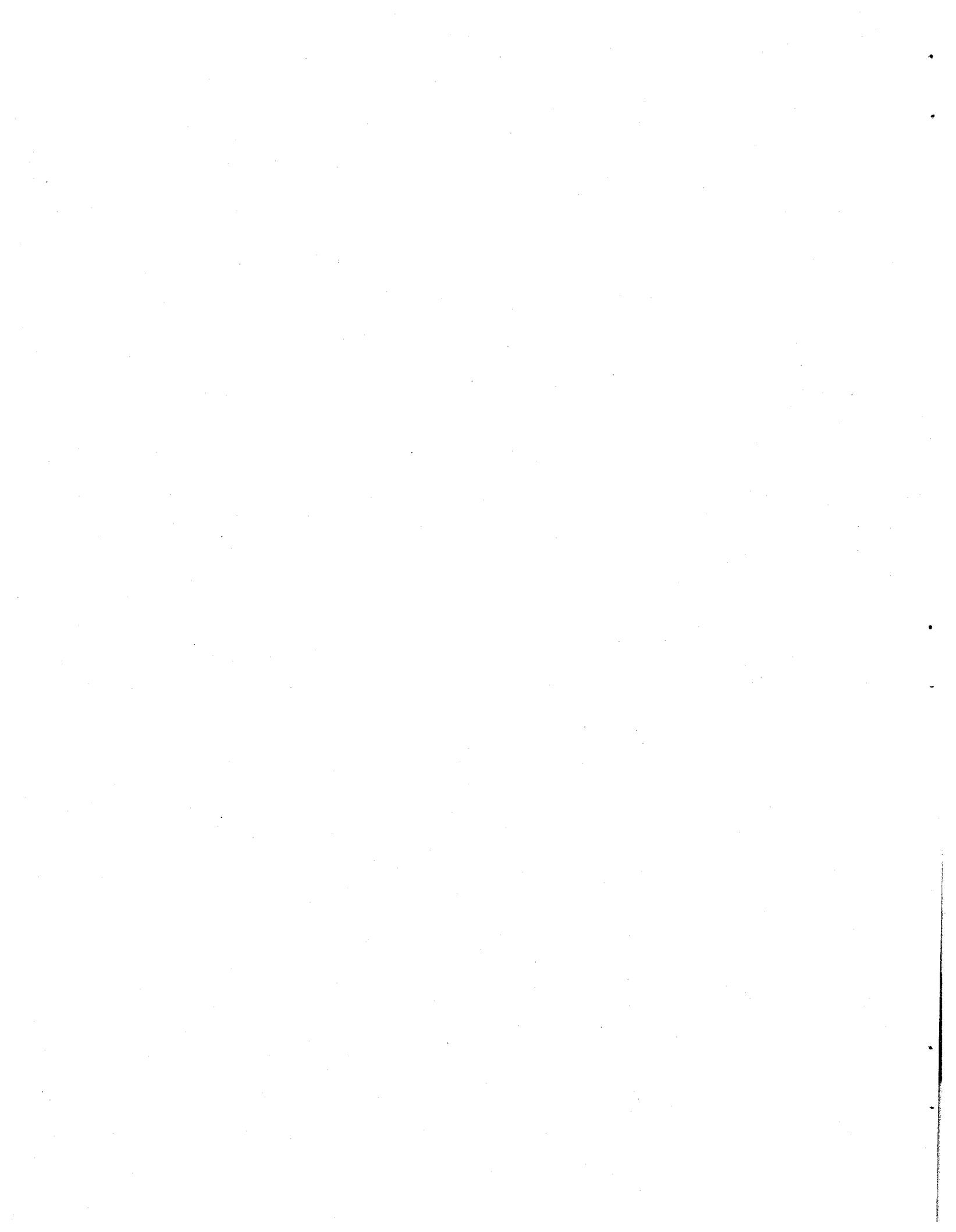
- les projets sur le modèle de simulation et de reconstitution des données et sur la modélisation des événements hydrologiques extrêmes à l'aide de lois statistiques ne font pas partie de la chaire.
- les projets C3 (détermination des crues de projet) et C5 (régionalisation des événements hydrologiques extrêmes) sont très reliés avec les objectifs du ministère de l'Environnement et de la Faune, j'aimerais associer étroitement à ces deux projets s'il y a un accord de l'Hydro-Québec et l'INRS-eau.

Je crois que les 18 premiers mois de l'existence de la chaire ont permis au professeur Bobée de consolider son équipe de recherche et d'établir des objectifs précis et les problématiques des projets.

Veuillez agréer, monsieur, l'expression de mes sentiments les meilleurs.

## **ANNEXE A**

**Association canadienne des Ressources hydriques (ACRH)**  
**49<sup>e</sup> congrès annuel / Québec**



**PRÉSENTATIONS DES TRAVAUX DE RECHERCHE RÉALISÉS  
DANS LE CADRE DE LA CHAIRE EN HYDROLOGIE STATISTIQUE**

**TECHNICAL PROGRAMME / PROGRAMME TECHNIQUE**

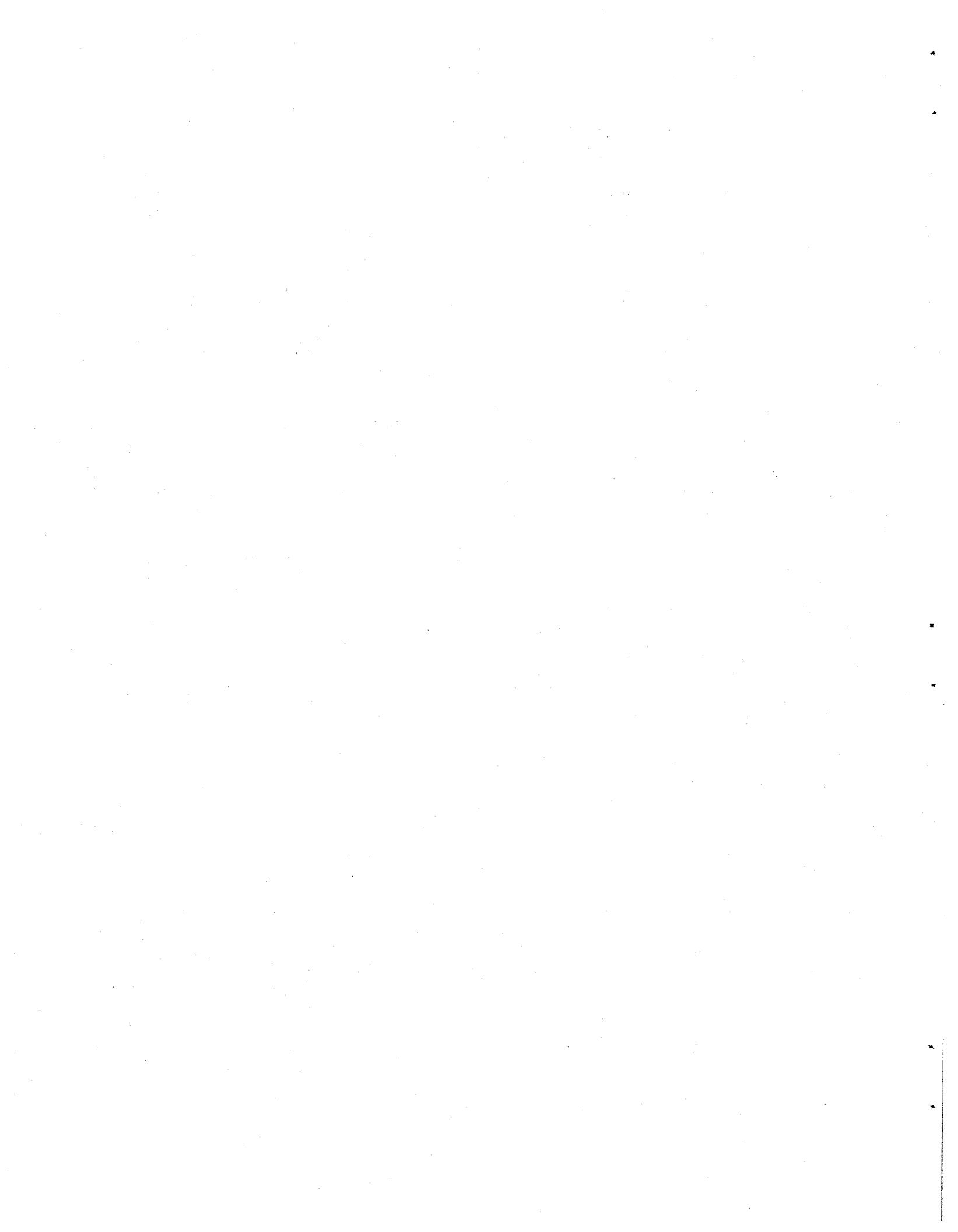
Canadian Society of Hydrological Sciences / Société Canadienne des Sciences Hydrologiques

Wednesday, June 26 / Mercredi 26 juin 1996

Chair / Président: *Michel Slivitzky*, professeur émérite à l'INRS-Eau

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- 14:30 - 14:40    *Introduction / Overview*  
Bernard Bobée / INRS-Eau  
Chaire en Hydrologie statistique Hydro-Québec - CRSNG
- 14:40 - 14:55    *Validation des apports naturels historiques*  
Marc Durocher et Mario Haché / Hydro-Québec / INRS-Eau
- 14:55 - 15:10    *Étude des séries d'apports énergétiques*  
Luc Perreault et Denis Tremblay / INRS-Eau / Hydro-Québec
- 15:10 - 15:25    *Détermination des événements hydrologiques extrêmes*  
Pierre Bruneau et Hugues Perron / Hydro-Québec / INRS-Eau
- 15:25 - 15:40    *Élaboration d'un modèle stochastique appliqué aux grands systèmes hydriques*  
Peter F. Rasmussen, Laura Fagherazzi et Jean-Claude Rassam  
INRS-Eau / Hydro-Québec
- 15:40 - 15:55    *Régionalisation des événements hydrologiques extrêmes*  
Taha B.M.J. Ouarda et Jean-Louis Bisson / INRS-Eau / Hydro-Québec
- 15:55 - 16:10    *Validation des niveaux en temps réel*  
Mario Haché et Bruno Larouche / INRS-Eau / Alcan
- 16:10 - 16:25    *Apport des méthodes statistiques pour planifier la décroissance des réseaux hydrométriques*  
Van-Diem Hoang, Peter F. Rasmussen, Richard Laurence et Taha B.M.J. Ouarda  
Ministère de l'Environnement et de la Faune / INRS-Eau / Environment Canada  
/ INRS-Eau
- 16:25 - 16:40    *Risque et fiabilité en hydrologie*  
Jean-Claude Rassam, Taha B.M.J. Ouarda et Laura Fagherazzi  
Hydro-Québec / INRS-Eau / Hydro-Québec
- 16:40 - 16:50    *Concluding remarks / Conclusion*  
Jean-Louis Bisson / Hydro-Québec
- 16:50 - 17:00    *Discussion*



**TECHNICAL PROGRAMME / PROGRAMME TECHNIQUE**  
**49<sup>th</sup> ANNUAL CWRA CONFERENCE / 49<sup>e</sup> CONFÉRENCE ANNUELLE DE L'ACRH**  
**JUNE 26-28 JUIN 1996**  
**Hotel Loews Le Concorde, Quebec City / Québec**

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**Tuesday June 25 / Mardi 25 juin**

→ *Hotel lobby / Hall d'entrée*

● 17:00 - 20:00

Registration and Welcoming Reception (Cash bar)

Inscription et réception d'accueil (Bar payant)

**Wednesday June 26 / Mercredi 26 juin**

→ *Hotel lobby / Hall d'entrée*

● 8:00 -

Registration / Inscription

→ *Borduas with translation / avec traduction*

● 9:00 - 9:30

Opening Session / Session d'ouverture

Welcome / Bienvenue

Chair / Président: *Jean-Pierre Fau*

Mayor of Quebec City / Maire de la ville de Québec: *Jean-Paul L'Allier*

President of CWRA / Président de l'ACRH: *Rick Ross*

→ *Borduas with translation / avec traduction*

● 9:30 - 10:15

General Keynote Address / Allocution générale

*Rational and Sustainable Development of Water Resources*

*Développement durable et rationnel des ressources hydriques*

Chair / Président: *C.A. Madramootoo*

by / par: *Asit K. Biswas*

President - International Society for Ecological Modelling

● 10:15 - 10:30

**BREAK / PAUSE**

→ *Borduas*

● 10:30 - 12:00

Panel Discussion / Groupe de discussion

Panel Members / Membres du groupe

Chair / Président: *Dr. H.G. Coffin*

*Michel Slivitzky, Jim Bruce, Jim Ranson, Jane Marks*

● 12:00 - 13:30

**LUNCH / DÉJEUNER**

→ *Borduas*

● 13:30 - 14:15

Thematic Keynote / Allocution thématique

*Large Scale Water Resources Management*

Chair / Président: *Jean-Claude Rassam*

by / par: *Jean-Guy René*

<i>Développement des systèmes hydriques d'envergure</i>				Président-directeur général, Société d'Énergie de la Baie James
● 14:15 - 14:30	BREAK / PAUSE			
● 14:30 - 17:00	Concurrent Technical Sessions / Sessions techniques simultanées			
<b>CSHS/SCSH</b> <i>with translation / avec traduction</i> Chair/Président: Michel Slivitzky	<b>Borduas</b> <i>with translation / avec traduction</i> Chair/Président: André Carpentier	<b>CWRA/ACRH</b> <i>with translation / avec traduction</i> Chair/Président: André Carpentier	<b>Leduc-Fortin</b> <i>with translation / avec traduction</i> Chair/Président: André Carpentier	<b>IWRA/AIRE</b> <i>with translation / avec traduction</i> Chair/Président: Dejiang Long
● 14:30-14:40 <i>Introduction/Overview</i> Bernard Bobée/INRS-Eau, Chaire en Hydrologie Statistique Hydro- Québec/CRSNG	● 14:30-14:50 <i>Climate Change: Practising Adaptive Management for Sustainability of Canadian Water Resources</i> Grace Koshida/Environment Canada	● 14:30-14:50 <i>Estimated Future Water Balance of Euphrates River</i> Wakil Mikhail/McGill University	● 14:30-14:50 <i>Estimated Future Water Balance of Euphrates River</i> Wakil Mikhail/McGill University	● 14:30-14:50 <i>Simulating Nitrogen Dynamics under Water Table Management</i> J. Wambua Kaluli and Chandra A. Madramootoo/McGill University
● 14:40-14:55 <i>Validation des apports naturels historiques</i> Marc Durocher et Mario Haché Hydro-Québec/INRS-Eau	● 14:50-15:10 <i>Effects of Lake Ontario Outflow Regulation on Spring Water Levels of Lac Saint Louis</i> David Fay and André Carpentier Environment Canada/Ministère de l'Environnement et de la Faune du Québec	● 14:50-15:10 <i>The Water Resource Development Plan for the Maracaibo Plain, Venezuela</i> Manuel Medina, Martin Hyde and Pedro Corzo/SNC-Lavalin Agriculture Inc./PLANIMARA	● 14:50-15:10 <i>The Water Resource Development Plan for the Maracaibo Plain, Venezuela</i> Manuel Medina, Martin Hyde and Pedro Corzo/SNC-Lavalin Agriculture Inc./PLANIMARA	● 14:50-15:10 <i>An Artificial Neural Network Model for Simulation of Water Table Depths and Drain Outflows</i> Chun-Chieh Yang, Shiv O. Prasher, René Lacroix, Sreekanth, N.K. Patni and L. Masse/McGill University
● 14:55-15:10 <i>Étude des séries d'apports énergétiques</i> Luc Perreault et Denis Tremblay INRS-Eau/Hydro-Québec	● 15:10-15:30 <i>Water Management on a Watershed basis - Implementing an Ecosystem Approach: The Ontario Expericence</i> Donald E. Greer/Ontario Ministry of Natural Resources	● 15:10-15:30 <i>Canadian Development Assistance Role in the Water Sector for the 1990's</i> Aly M. Shady and Grace Fayad/CIDA	● 15:10-15:30 <i>Canadian Development Assistance Role in the Water Sector for the 1990's</i> Aly M. Shady and Grace Fayad/CIDA	● 15:10-15:30 <i>Sustainability of Subsurface Drainage Systems</i> Craig A. Dockery and Robert S. Broughton/McGill University
● 15:10-15:25 <i>Détermination des événements hydrologiques extrêmes</i> Pierre Bruneau et Hugues Perron Hydro-Québec/INRS-Eau	● 15:30 - 16:00      BREAK / PAUSE	● 15:30 - 16:00      BREAK / PAUSE	● 15:30 - 16:00      BREAK / PAUSE	● 15:30 - 16:00      BREAK / PAUSE
● 15:25-15:40 <i>Élaboration d'un modèle stochastique appliqué aux grands systèmes hydriques</i> Peter F. Rasmussen, Laura Fagherazzi et Jean-Claude Rassam INRS-Eau/Hydro-Québec				

● 15:40-15:55 *Régionalisation des événements hydrologiques extrêmes*  
Taha B.M.J. Ouarda et Jean-Louis Bisson/INRS-Eau/Hydro-Québec

● 15:55-16:10 *Validation des niveaux en temps réel*  
Mario Haché et Bruno Larouche  
INRS-Eau/Alcan

● 16:10-16:25 *Apport des méthodes statistiques pour planifier la décroissance des réseaux hydrométriques*  
Van-Diem Hoang, Peter F. Rasmussen, Richard Laurence et Taha B.M.J.  
Ouarda/Ministère de l'Environnement et de la Faune/INRS-Eau/ Environment Canada/INRS-Eau

● 16:25-16:40 *Risque et fiabilité en hydrologie*  
Jean-Claude Rassam , Taha B.M.J.  
Ouarda et Laura Fagherazzi  
Hydro-Québec/INRS-Eau/Hydro-Québec

● 16:40-16:50 *Discussion*

● 16:50-17:00 *Concluding remarks /Conclusion*  
Jean-Louis Bisson/Hydro-Québec

● 17:00 - 17:15

**BREAK / PAUSE**

● 17:15 -

Directors Meeting / Réunion du conseil d'administration

● 16:00-16:20 *Watershed Management Strategy - Targeted Ecological Planning*  
Patrick Donnelly/Ausable Bayfield Conservation Authority

● 16:00-16:20 *La problématique de l'aménagement du bassin du fleuve Sénégal après les barrages de Diama et de Manantali*  
Noël Dacruz Evora, Joseph Ribeiro et Jean Rousselle/École Polytechnique, Université de Montréal

● 16:20-16:40 *Optimization Modelling of Large Scale Water Resource Systems Under Water Shortages - Phase I*  
Abdel-Zaher K. Abdel-Razek  
Department of Environment, Govt. Newfoundland and Labrador

● 16:20-16:40 *Turnover Programs within the IISP-II Project North Sulawesi, Indonesia*  
Ir. H.E. Wala, John R. Slater and Ishrat Ali Khan/Ministry of Public Works, Indonesia/SNC Lavalin Agriculture Inc.

● 16:00-16:20 *Natural Biological Treatment of Wastewaters and Agricultural Drainage for Reuse in Irrigation*  
Suzelle F. Barrington/McGill University

● 16:20-16:40 *Irrigation Water Criteria for Wheat in Semi-Arid Areas of Syria*  
Wakil Mikhail, Robert Bonnell and Jinan Haffar/McGill University

● 16:40-17:00 *Maximizing the Crop Net Benefit for a Multi-Reservoir System*  
Marcel Marcos and Jean Drolet  
Concordia University

● 16:40-17:00 *EDM-A Model for Optimizing the Short Term Power Operation of a Complex Hydroelectric Network*  
Michel Tremblay and Christian Guillaud  
SNC-Shawinigan Inc.

● 16:40-17:00 *Utilizing Geographic Information System for River Nile*  
Y. Raslan and M. Elmoattassem  
National Water Research Centre of Egypt

→ **Morrice-Lismer**  
→ **Borduas**  
→ **Jean-Paul Lemieux**

**CANCID**  
**CSHS / SCSH**  
**IWRA / AIRE**

● 18:30 -

Boat Cruise on the St. Lawrence River / Croisière sur le fleuve Saint-Laurent

Thursday June 27 / Jeudi 27 juin

→ **Borduas**      *with translation / avec traduction*

● 8:30 - 9:15

Thematic Keynote / Allocution thématique  
*Future Policy and Socio-Economic Directions in Canadian Water Resources*  
*Politiques et orientations socio-économiques dans le développement futur des ressources hydriques*

Chair / Président: *Ralph Silver*

by / par: *Gordon McBean*  
Assistant Deputy Minister, Environment Canada

● 9:15 - 9:30

**BREAK / PAUSE**

● 9:30 - 12:00

Concurrent technical sessions / Sessions techniques simultanées

**CANCID**

→ **Morrice-Lismer**

*without translation / sans traduction*  
Chair/Président: Jacques Gallichand

● 9:30-9:50 *Institutional Arrangements for Sustainable Irrigation Development in Salt Affected Catchments*

Michael J. Bryant/University of New England

● 9:50-10:10 *The Integrated Soil and Water Improvement Project, Egypt - Lessons Learned*  
John F. Metzger and Jean-Marcel Laferrière/SNC-Lavalin Agriculture Inc./CIDA

● 10:10-10:30 *Farmer Involvement in Reducing Agricultural Pollution: the Ruisseau St-Esprit Watershed Project*  
France Papineau, Peter Enright, Chandra A. Madramootoo and E. Léger/McGill University

● 10:30 - 11:00      **BREAK / PAUSE**

**CWRA/ACRH**

→ **Leduc-Fortin**

*without translation / sans traduction*  
Chair/Présidente: Jennifer Harker

● 9:30-9:50 *The Decision Making Process in the Ottawa River Regulating Committee*  
Fergus McLaughlin  
Ottawa River Regulation Secretariat

● 9:50-10:10 *Feasibility of Economic Instruments for Stormwater Management in the Regional Municipality of Ottawa-Carleton*  
Felice Petti and Dale Lynch/Regional Municipality of Ottawa-Carleton

● 10:10-10:30 *Past, Present, and Future of Partnerships in Water Monitoring - Views of One Provincial Representative*  
Bruce Letvak/British Columbia Environment

**IWRA/AIRE**

→ **Borduas**

*without translation / sans traduction*  
Chair/Présidente: Linsey Dyer

● 9:30-9:50 *Le pompage solaire: une alternative pour l'approvisionnement en eau des pays en développement*

Eric J. Schiller and Mahamadou Tounkara  
University of Ottawa

● 9:50-10:10 *Stakeholder Participation in Water Resources Planning: A Workshop Experience*  
Khaled Abu-Zeid, Khaled Kheireldin and Slobodan P. Simonovic/University of Manitoba/National Water Research Centre Egypt

● 10:10-10:30 *Integrated Water Management of the Nile Water in Egypt*  
Atef M. Kassem and Aly M. Shady/CIDA

- 11:00-11:20 Requirements for Improved Interactive Communication between Researchers, Managers, Extensionists, and Farmers

Laurie C. Tollefson and M.N.J. Wahab  
Saskatchewan Irrigation Development Centre

- 11:20-11:40 Role of Soil Moisture Content in Reducing Environmental Pollution from Pesticides

Seyed J. Jebellie and Shiv O. Prasher  
McGill University

- 11:40-12:00 Hydrological Simulation of Pesticide Transport in an Agricultural Watershed

Anne-Marie Laroche, Jacques Gallichand,  
Robert Lagacé et Alain Pesant/Université  
Laval/Agriculture and Agri-Food Canada

- 11:00-11:20 Resource Valuation and Public Policy: The Case of Water Pricing

Jim Frehs, Don Tate, Kimberley Rollins and  
Oswald Zachariah  
Environment Canada/University of Guelph

- 11:20-11:40 Tools of the Trade: The Regional Municipality of Ottawa-Carleton's Guidelines for Stormwater Management Projects

Ann Joyner, Don P. McKinnon, Ivan Lorant and  
Dale Lynch/M.M. Dillon Ltd./Regional  
Municipality of Ottawa-Carleton

- 11:40-12:00 Economic Benefits of Optimization Modelling for Improving the Sihu Basin Water Management in China

Huang Zejun, Bai Xiantai, Dejiang Long, Leslie  
F. Sawatsky, Richard Reidinger and Slobodan P.  
Simonovic  
Hubei Water Resources Bureau/AGRA Earth and  
Environmental Ltd./World Bank

- 11:00-11:20 Application of Geochemical Models to Study the Environmental Impact of Discharged Industrial Effluents on Water Quality

Tarik A. Tawfic and A.R. Abdel-Tawwab  
National Water Research Centre, Egypt

- 11:20-11:40 L'élaboration des politiques nationales visant les systèmes hydriques d'envergure: le rôle du Canada

Pierrette Sinclair and Jean-Claude Rassam  
Stikeman Elliott, avocats/Hydro-Québec

- 11:40-12:00 Effects of Flow Diversion for Power Generation on the Appearance of Victoria Falls

Christopher Mwasile and Linsey Dyer  
Zambia Electricity Supply Corp./SNC-Shawinigan  
Inc.

● 12:00 - 13:30

## LUNCH / DÉJEUNER

→ Borduas with translation / avec traduction

● 13:30 - 14:15 Thematic Keynote / Allocution thématique

Water and Indigenous Peoples / L'eau et les populations autochtones

● 14:15 - 14:30

## BREAK / PAUSE

● 14:30 - 16:10

## Concurrent Technical Sessions / Sessions techniques simultanées

CWRA/ACRH

→ Leduc-Fortin

with translation / avec traduction

Chair/Président: R.S. Broughton

- 14:30-14:50 Aboriginal Involvement in Water Management in Saskatchewan

Wayne Dybvig/Saskatchewan Water Corp.

CANCID

→ Morrice-Lismore  
without translation / sans traduction

Chair/Président: Colin Lovegrove

- 14:30-14:50 Design Decisions for Choosing a Sustainable Synthetic Envelope

Robert Bonnell/McGill University

CSHS/SCSH

→ Borduas

with translation / avec traduction

Chair/Président: Taha B.M.J. Ouarda

- 14:30-14:50 Statistical/Dynamical Adaptation of Precipitation to Meso-γ Resolution for Distributed Hydrological Modelling

Robert Benoit, Pierre Pellerin and Jocelyn  
Mailhot/Environment Canada

- 14:50-15:10 *Development of a Decision Support System for Managing an Urban Aquatic Ecosystem*  
 Dale Lynch and Klaus Wiebe  
 Regional Municipality of Ottawa-Carleton

● 15:10-15:30 *Partenariat entre les autochtones et l'industrie privée: le développement de la rivière Gatineau*  
 Jean-Guy Whiteduck, John Bahen, Pierre Dumas et Kitigan Zibi Anishinabeg/Hydro-Pontiac Inc.  
 /Pierre Dumas & associés ltée

● 15:30-15:50 *Contribution à l'évaluation du coefficient de mélange longitudinal dans les cours d'eau*  
 Samir Gharbi et Jean-Louis Verrette  
 Université Laval

● 15:50-16:10 *Master Environmental Servicing Plans: A Tool for Integrating Stormwater Management with Environmental Management*  
 Jennifer Harker and Alan S. Lam  
 M.M. Dillon Ltd./Greenland Engineering Group

● 16:10 - 16:30 **BREAK / PAUSE**

→ *Leduc-Fortin with translation / avec traduction*  
 ● 16:30 - 17:45 CWRA Annual General Meeting / Réunion générale annuelle de l'ACRH

→ *Foyer*  
 ● 18:30 - 19:00 RECEPTION - Cash Bar / RÉCEPTION - Bar payant

→ *Borduas with translation / avec traduction*  
 ● 19:00 - BANQUET and AWARDS / BANQUET et REMISE DES PRIX

● 14:50-15:10 *Recycling Polluted Water through Biological Filters*  
 Abdolmajid Liaghat and Shiv O. Prasher  
 McGill University

● 15:10-15:30 *Blood Tribe Irrigation Project*  
 Francis First Charger, Len Ring and Narcisse Blood/Blood Tribe Agricultural Project/Lethbridge Community College

● 15:30-15:50 *Selecting Interventions for Improving Water Quality of a Small Agricultural Watershed*  
 Éric Aubin, Jacques Gallichand and Pierre Baril/Université Laval/BPR Ingénieurs-Conseils

● 15:50-16:10 *Role of the Saskatchewan Irrigation Development Centre in Crop Diversification.*  
 L.C. Tollefson/Saskatchewan Irrigation Development Centre

● 14:50-15:10 *La fonction Béta-Jacobi comme nouvelle méthode d'analyse des crues*  
 Khalidou-Mamadou M. Bâ, Carlos Diaz Delgado et José Llamas/Universidad Autonoma del Estado de México/Université Laval

● 15:10-15:30 *Calibration de bassins versants urbains*  
 Nicholas Théberge et Pierre Lemieux  
 BMST Richelieu Experts Conseils Inc.

● 15:30-15:50 *A Comparison of Parametric and Nonparametric Methods for Low-Flow Frequency Analysis*  
 K. Adamowski and P.J. Pilon/University of Ottawa/Environment Canada

● 15:50-16:10 *A New Approach to Regional Estimation of Floods in Quebec*  
 V.T.V. Nguyen and Ganesh Raj Pandey  
 McGill University

Guest Speaker / Conférencier invité: *Denys Jean*  
 Sous-ministre adjoint aux Politiques  
 Ministère de l'Environnement et de la Faune du Québec

Friday June 28 / Vendredi 28 juin

<p>→ <b>Borduas</b>      <i>with translation / avec traduction</i></p> <p>● 8:30 - 9:15      Thematic Keynote / Allocution thématique <i>Striking an Environmental Balance / Vers un équilibre environnemental</i></p>	<p>Chair / Président: <i>Aly Shady</i> by / par: <i>François Guimont</i> Director General, Environment Canada</p>
<p>● 9:15 - 9:30      <b>BREAK / PAUSE</b></p>	
<p>● 9:30-12:00      Concurrent Technical Sessions / Sessions techniques simultanées</p>	
<p><b>CWRA/ACRH</b>      → <b>Leduc-Fortin</b> <i>with translation / avec traduction</i> Chair/Président: Peter Enright</p>	<p><b>IWRA/AIRE</b>      → <b>J.-P. Lemieux</b> <i>without translation / sans traduction</i> Chair/Président: Eric Schiller</p>
<p>● 9:30-9:50 <i>Geostatistical Assessment of Groundwater Contamination in Estrie-Montérégie Area using Indicator Kriging</i> C. Bellehumeur, Colette Ansseau and Bernard Marcos/Université de Sherbrooke</p>	<p>● 9:30-9:50 <i>Sustainable Water Management in Greece: A Dream or a Vision?</i> Yannis A. Mylopoulos Aristote University of Thessaloniki, Greece</p>
<p>● 9:50-10:10 <i>La gestion intégrée du bassin hydrographique de la rivière Saint-Charles: la cartographie d'unités naturelles de gestion</i> Jean-Pierre Ducruc et Vincent Gérardin/Ministère de l'Environnement et de la Faune du Québec</p>	<p>● 9:50-10:10 <i>GIS Applications for Water Resources Management of the Nile</i> Gregory F. Gillis, John M. Henderson and Mark E. Doucette/SPIDER International/Watermark</p>
<p>● 10:10-10:30 <i>South Tobacco Creek - Twin Watershed Project: Automated Runoff Monitoring and Water Sampling</i> James B. Yarotski/PFRA</p>	<p>● 10:10-10:30 <i>Integrated Water Resources Model for Setting Water Policy of Egypt</i> Khaled Kheireldin, Ahmed S. El-Zaher, Khaled Abu Zeid and Hussam Fahmy/National Water Research Centre, Egypt/Cairo University</p>
	<p><b>CANCID</b>      → <b>Morrice-Lismore</b> <i>without translation / sans traduction</i> Chair/Président: Laurie Tollefson</p>
	<p><b>CSHS/SCSH</b>      → <b>Borduas</b> <i>with translation / avec traduction</i> Chair/Présidente: Dale Lynch</p>
	<p>● 9:30-9:50 <i>Towards Integrated Water Management</i> Colin Lovegrove and Brian Boyd CIDA</p>
	<p>● 9:50-10:10 <i>Modelling N Leaching into Drainage Water Following the Soil Application of Fertilizers</i> Somgiant Hengnirun, Suzelle Barrington and Shiv Prasher McGill University</p>
	<p>● 9:50-10:10 <i>Geophysical Methods Used in Groundwater Exploration</i> Althea Lincoln, Wayne Karlen and Mike Pesowski/PFRA/Applied Ground Imaging Ltd./Geo-Physical Con Co. Ltd.</p>
	<p>● 10:10-10:30 <i>A Remote Sensing Analysis of Sediment Transport in Lake St. Pierre</i> Sofia Babarutsi and D. Moses McGill University/Wyeth Ayerst Inc.</p>

● 10:30 - 11:00

**BREAK / PAUSE**

● 11:00-11:20 *Valuing Wetland Nutrient Buffers in the Eramosa River Watershed*

Karl Schaefer, Elizabeth Snell and Dave Hayman/Environment Canada/Snell and Cecile Environmental Research/D.G. Hayman Environmental Consultants

● 11:20-11:40 *Methods of Baseflow Assessment for River Basin Development. A Case Study: Morningside Creek, Toronto, Ontario*

J. Anderson, A. Gordine, P. Moddle and P. Cookson Golder Associates Ltd./City of Scarborough

● 11:40-12:00 *Quality Assurance for Electronic Data*  
Ian McLaurin/Cadham Hayes Systems Inc.

● 11:00-11:20 *The Use of Environmental Impact Assessment as a Planning Tool in CIDA*  
Zhizhong Si and David L. MacDonald/CIDA, Asia Branch

● 11:20-11:40 *The Workplace Risk Assessment and Control WRAC Process: A Tool to Manage Environmental Risks*  
Catherine J.M. Rostron and Denver Roopchand/ALARA Risk Management Services Malaysia

● 11:40-12:00 *Modelling the Salt and Water Balance of a Closed Drainage Basin*  
Hatem Ali and Chandra A. Madramootoo/McGill University

● 11:00-11:20 *Integrated Water and Agricultural Management Opportunities in Irrigated Agriculture of the Chambal Command Area, Rajasthan, India*  
Anju Gaur, D.K. Srivastava, J.A. Millette and N.A. Visvanatha Rajasthan Agricultural Drainage Project

● 11:20-11:40 *Environmental Impact Evaluation and Monitoring of the Semerak Rural Development Project, Kelantan, Malaysia*  
Eugene K. Ramcharan, Dennis Westhoff and Les F. Sawatsky TROPECOL/AGRA Earth and Environmental Ltd.

● 11:40-12:00 *Society's Gain from Water Quality Improvement Through Changing Farm Practices*  
Willem van Vuuren, D.P. Stonehouse and C. Giraldez University of Guelph

● 11:00-11:20 *Developing a Watershed-wide Flood Control Strategy - A Case Study in Southern Ontario*

Alan S. Lam, Edward I. Graham, Don Haley and Glenn McMillan Greenland Engineering Group/Metropolitan Toronto and Region Conservation Authority

● 11:20-11:40 *Development of a Water Balance Model as a Planning Tool for Stormwater Management Application*  
Edward I. Graham, H.R. Whiteley and N.R. Thomson/Greenland Engineering Group/University of Guelph/University of Waterloo

● 11:40-12:00 *Management and Sustainable Development of Water Resources in Shiyang River Basin*  
Jiong-Lin Shi/Gansu Agricultural University

→ **Borduas** with translation / avec traduction

● 12:00 - 12:30

**CLOSING CEREMONY / CÉRÉMONIE DE CLÔTURE**

● 12:30 - 13:30

**LUNCH / DÉJEUNER**

→ **Pilot**

● 13:30 -

**CWRA Board of Directors Meeting / Réunion du Conseil d'administration de l'ACRH**

Chair / Président: *Michel Slivitzky*

**Saturday June 29 / Samedi 29 juin**



Technical tour of LG2 / Tournée technique de LG2  
CANCID Technical Tour / Tournée technique du CANCID

## **ANNEXE B**

### **Financement et bilan financier**





Natural Sciences and Engineering  
Research Council of Canada

350 Albert Street  
Ottawa, Canada  
K1A 1H5  
Facsimile: (613) 992-5337

Conseil de recherches en sciences  
naturelles et en génie du Canada

350, rue Albert  
Ottawa, Canada  
K1A 1H5  
Télécopieur: (613) 992-5337

663-004/92

Le 21 août 1996

Monsieur Bernard Bobée  
INRS-Eau  
Université du Québec  
2700, rue Enstein  
Case Postale 7500  
Sainte-foy (Québec)  
G1V 4C7

Object : *Diffusion de travaux de la Chaire en Hydrologie statistique CRSNG/Hydro-Québec*

Cher Monsieur,

Je vous remercie de votre envoi du 8 juillet dernier. Je désire par la présente vous aviser qu'un chèque de 3 000 \$ vers les coûts de votre tournée canadienne de diffusion des travaux de votre chaire industrielle vous parviendra sous peu du CRSNG.

Veuillez accepter, Monsieur, l'expression de mes sentiments distingués.

Pierre-Richard Gaudreault, Ph.D.  
Programme de partenariats de recherche

Téléphone (613) 992-7106  
Télécopieur (613) 992-5337  
Courrier électronique prg@nserc

c.c. J. Villeneuve, INRS-Eau  
P. Lapointe, INRS  
G. Neveu, Hydro-Québec

Canada

**Hydro-Québec**  
75, boul. René-Lévesque ouest  
Montréal (Québec)  
H2Z 1A4

Montréal, le 29 février 1996

Professeur Bernard Bobée  
INRS-Eau  
2800 rue Einstein  
Case postale 7500  
Sainte-Foy, Québec  
G1V 4C7

Cher Professeur,

Pour faire suite à notre rencontre où vous nous exposiez votre projet de tournée canadienne ayant pour objectif de promouvoir les travaux que vous réalisez pour le compte d'Hydro-Québec dans le cadre de la Chaire en Hydrologie statistique CRSNG-Hydro-Québec, je vous réitère par la présente notre intention de supporter votre initiative. Nous considérons que les travaux que vous menez en collaboration avec notre entreprise ont intérêt à être diffusés chez nos partenaires électriciens, ainsi que dans le milieu universitaire.

La contribution d'Hydro-Québec pourrait consister, si cela vous convient, à vous assister dans l'organisation de cet événement (prise de contact avec les intervenants d'entreprises électricques canadiennes, rédaction de documents de support etc.). Nous pourrions alors consentir à dégager un conseiller de notre unité pour environ 2 semaines (ce qui correspond à une contribution financière de l'ordre de \$ 3 000) afin de participer à l'organisation de votre tournée canadienne.

Je vous prie d'accepter, professeur Bobée, mes salutations distinguées.

La Directrice Relations gouvernementales  
et institutionnelles

  
Hélène Gauthier Roy

c.c. René Roy

**INRS** Université du Québec  
**Institut national de la recherche scientifique**

Département scientifique

Tour de la Cité  
2600, boulevard Laurier, bureau 640  
Case postale 7500  
Sainte-Foy (Québec) G1V 4C7  
CANADA  
Téléphone : (418) 654-2500  
Télécopieur : (418) 654-3858

Le 16 avril 1996

Monsieur Jean-Pierre Villeneuve  
Directeur  
INRS-Eau

**Objet : "Chaire en Hydrologie statistique"**

Monsieur le Directeur,

Suite à votre lettre du 3 avril dernier, la Direction scientifique de l'INRS accepte avec plaisir de mettre à la disposition du professeur Bernard Bobée la somme de 3 000 \$ afin de permettre aux chercheurs de son équipe de faire la promotion de leurs résultats de recherche.

Cette subvention vous est allouée à partir du Fonds institutionnel de recherche (FIR) de l'INRS (année financière 1995-1996). Je souhaite au professeur Bobée et aux membres de son équipe la meilleure chance possible dans le cadre de cette activité. De plus, j'apprécierais être informé du déroulement de cette campagne de promotion et aimerais recevoir toute documentation qui pourrait être publiée relativement à cet événement. Je vous en remercie à l'avance.

Recevez, Monsieur le Directeur, l'expression de mes meilleurs sentiments.

Le directeur scientifique,

Pierre Lapointe

c.c.: M. Bernard Bobée, INRS-Eau ✓  
M. Martin Desmeules, INRS  
M. Julien Martineau, INRS

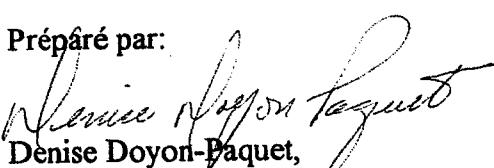


**ÉTAT DES REVENUS ET DES DÉPENSES**  
**Tournée canadienne**  
**8 au 14 novembre 1996**

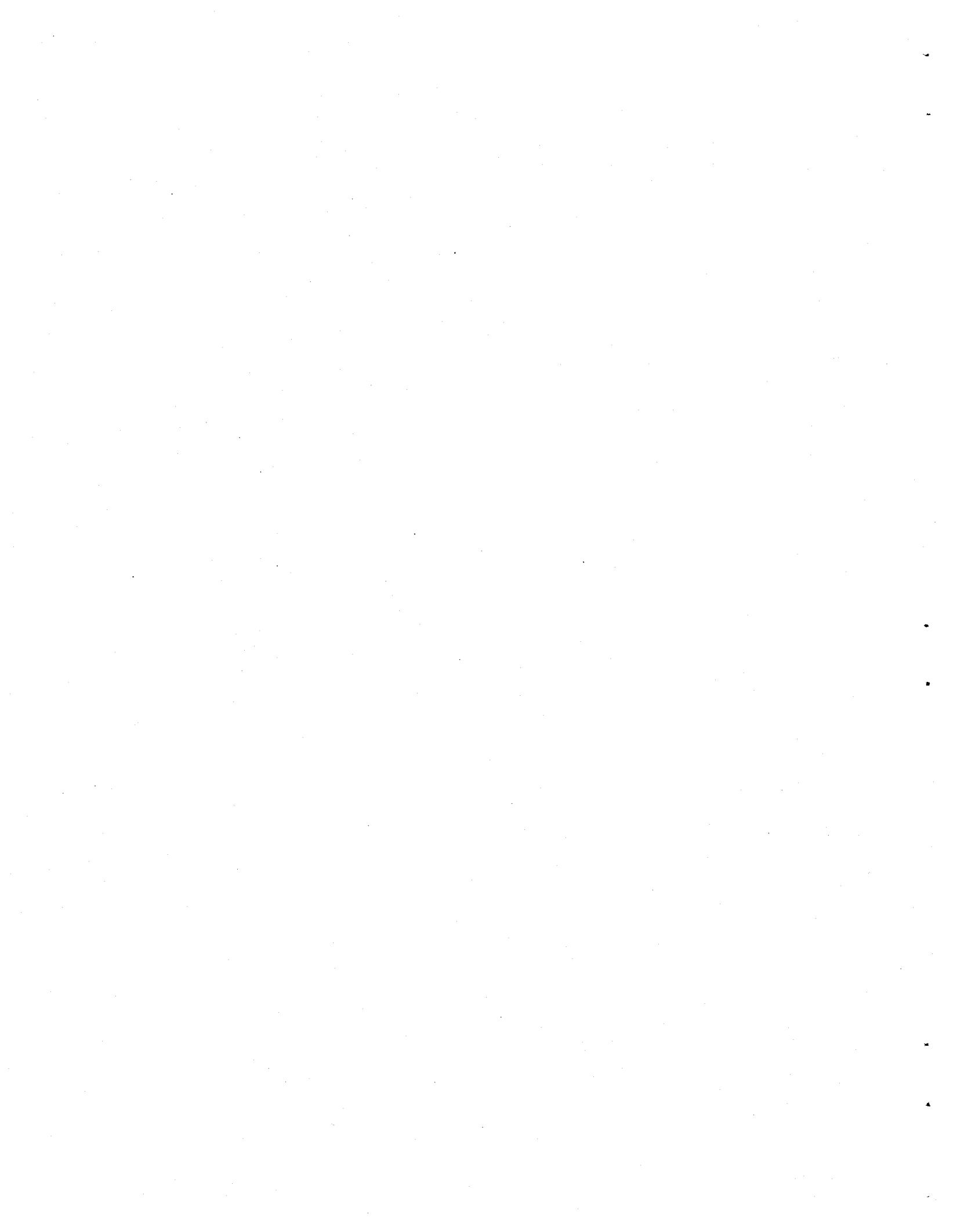
<b>REVENUS</b>	<b>INRS 3 000\$</b>	<b>CRSNG 3 000\$</b>	<b>TOTAL 6 000\$</b>
<b>DÉPENSES</b>			
• Frais de séjour et de voyage (Montréal) B. Bobée/M. Haché/L. Perreault/H. Perron	867,70	0,00	867,70
• Location d'une voiture	0,00	114,48	114,48
• Buffet et location de salle *	608,47	0,00	608,47
• Frais de séjour et de voyage Montréal/Toronto/Vancouver T. Ouarda/P. Rasmussen	186,44	2 885,52	3 071,96
• Divers			
Fournitures de bureau	497,08	0,00	497,08
Photocopie	715,31	0,00	715,31
Messagerie	50,00	0,00	50,00
Interurbains	75,00	0,00	75,00
<b>TOTAL</b>	<b>3 000,00</b>	<b>3 000,00</b>	<b>6 000,00</b>

\* 34 participants au buffet organisé à Hydro-Québec, le 8 novembre 1996, lors de la présentation des travaux réalisés dans le cadre de la Chaire

Préparé par:



Denise Doyon-Paquet,  
 Adjointe administrative  
 ☎ 654-2628



Quebec, June 04, 1995.

Ralph Silver  
TECHNIK-EAUCAN Inc.  
1023 Blvd Hyman, Suite 102  
Dollard-des-Ormeaux, (Québec)  
H9B 2L4

Re.: Diffusion of technology developed by the NSERC - Hydro-Quebec Chair in statistical hydrology at the INRS-Eau

Dear Mr. Silver:

Following our phone discussion, I am writing you to apply for partial funding, from the Canadian Water Resources Association (CWRA), to assist the statistical hydrology chair at INRS-Eau in transferring the technology developed during the last years to the other parts of Canada. This technology, the result of several research projects carried out by our group, should be of important value to other Canadians working in the field. Innovative approaches have been developed in such fields as regionalisation of flood characteristics, statistical modeling of hydrologic variables, application of new statistical distributions in hydrology, modeling of hydrologic time series, etc. One of the main recommandations of the chair reviewing committee is to organise site visits to the various potential users of this technology (universities, governmental agencies, electric utilities, industry,...) around Canada. The objective of this tour is to share the results of research carried out at the INRS-Eau with other Canadian users, especially in English speaking parts of Canada outside the province of Quebec.

We share the opinion of the review committee concerning the importance of diffusing these results to other potential users, and we believe that organising a set of site visits would be a good format to accomplish the technology transfer. Copies of all relevant publications will also be distributed during these site visits.

In order to achieve these objectives and carry out these site visits, we intend to apply for financial support from a few other sources (Canadian Society for Civil Engineering, National Science and Engineering Research Council of Canada, Canadian Electrical Association, and the Association for Canadian Studies). It is under this framework that I am writing you to request

partial financial support from the Canadian Water Resources Association.

Thank you, Mr. Silver, for your kind attention to this matter. If you have any questions, or require further information, please contact me at the address listed below.

Sincerely,



Taha B.M.J. Ouarda  
INRS-Eau, 2800 Einstein  
C.P. 7500  
Sainte-Foy, Quebec, G1V 4C7  
Canada  
Tel. (418) 654-3842  
Fax (418) 654-2600  
E-Mail ouardata@INRS-Eau.quebec.ca

CC. Mr. James Bauer  
Mr. Edgar Watt

Quebec, July 24, 1995

Mr. Jim Bauer  
Executive Director of the CWRA  
106 Pine Brook Place  
Waterloo, Ont.  
N2V 1T2  
CANADA

Re.: Diffusion of technology in the field of statistical hydrology

Dear Mr. Bauer:

I am writing you this letter to follow up on my letter of June, 04, 1995 concerning the diffusion of technology developed by the NSERC - Hydro-Quebec Chair in statistical hydrology at the INRS-Eau, and to provide you with new information concerning the nature of our budget. We have already procured some financing from Hydro-Quebec (a minimum of 3,000\$) and from the NSERC (in the amount of 3,000\$). We have also obtained promises from some local sponsors for promoting and financing, locally, the conferences we intend to organise. Our initial estimate of the total cost of the tour is in the order of 12,000\$. This figure remains relatively flexible since the final number of site visits will depend on the total amount of financing procured.

We believe in the importance of the promotion of a better communication within the hydrological scientific community, and between the scientific community and those involved in the application of hydrological knowledge in the various fields of water resources. This tour is intended to contribute to the furthering of the communication exchange in the field of hydrology in Canada and especially between the French and the English speaking sections of the hydrological community. Your support in achieving these goals is tremendously appreciated.

Thank you, Mr. Bauer, for your kind attention to this matter. If further information is required, please contact me at the address listed below.

Sincerely,

Taha B.M.J. Ouarda  
INRS-Eau, 2800 Einstein  
C.P. 7500  
Sainte-Foy, Quebec, G1V 4C7  
Canada  
Tel. (418) 654-3842  
Fax (418) 654-2600  
E-Mail [ouardata@INRS-Eau.uquebec.ca](mailto:ouardata@INRS-Eau.uquebec.ca)

CC. Mr. Ralph Silver  
Prof. Edgar Watt

Quebec, June 29, 1995

Mrs. Lesley West  
Canadian Society for Civil Engineering  
Suite 840  
2155 Juy Street  
Montreal, Québec  
H3H 2R9

Re.: Diffusion of technology developed by the NSERC - Hydro-Québec  
Chair in statistical hydrology at the INRS-Eau

Dear Mrs West:

Following our phone discussion, I am writing you to apply for partial funding, from the Canadian Society for Civil Engineering, to assist the statistical hydrology chair at INRS-Eau in transferring the technology developed during the last couple of years to the other parts of Canada. This technology, the result of several research projects carried out by our group, should be of important value to other Canadians working in the field. Innovative approaches have been developed in such fields as regionalisation of flood characteristics, statistical modelling of hydrologic variables, application of new statistical distributions in hydrology, modelling of hydrologic time series, etc. One of the main recommendations of the chair reviewing committee is to organise site visits to the various potential users of this technology (universities, electric utilities, governmental agencies,...) around Canada. The objective of this tour is to share the results of research carried out at the INRS-Eau with other Canadian users in the Hydro-electric field, especially in English speaking parts of Canada outside the province of Quebec.

We share the opinion of the review committee concerning the importance of diffusing these results to other potential users, and we believe that organising a set of site visits would be a good format to accomplish the technology transfer. Copies of all relevant publications will also be distributed during these site visits.

In order to achieve these objectives and carry out these site visits, we intend to apply for financial support from a few other sources (Canadian Electrical Association, National Science and Engineering Research Council of Canada, Canadian Water Resources Association, and the Association for Canadian Studies). We have also already procured some financing from Hydro-Québec to help meet the requirements of these site visits. It is under this framework that I am writing you to request partial financial support, in the amount of \$500.00, from the Canadian Society for Civil Engineering. I am enclosing, herewith, a copy of a flyer describing the axes of research at the statistical hydrology chair at INRS-Eau (an updated English version of this flyer is being prepared), and a couple of recent publications by our group.

Thank you, Mrs West, for your kind attention to this matter. If you have any questions, or require further information, please contact me at the address listed below.

Sincerely,

Taha B.M.J. Ouarda  
INRS-Eau, 2800 Einstein  
C.P. 7500  
Sainte-Foy, Quebec, G1V 4C7  
Canada  
Tel. (418) 654-3842  
Fax (418) 654-2600  
E-Mail [ouardata@INRS-Eau.uquebec.ca](mailto:ouardata@INRS-Eau.uquebec.ca)

Enclosures

Quebec, July 24, 1995

Mrs. Lesley West  
Canadian Society for Civil Engineering  
Suite 840  
2155 Juy Street  
Montreal, Quebec  
H3H 2R9 CANADA

Re.: Diffusion of technology in the field of statistical hydrology

Dear Mrs. West:

I am writing you this letter to follow up on my letter of June, 29, 1995 concerning the diffusion of technology developed by the NSERC - Hydro-Quebec Chair in statistical hydrology at the INRS-Eau, and to provide you with new information concerning the nature of our budget. We have already procured some financing from Hydro-Quebec (a minimum of 3,000\$) and from the NSERC (in the amount of 3,000\$). We have also obtained promises from some local sponsors for promoting and financing, locally, the conferences we intend to organise. Our initial estimate of the total cost of the tour is in the order of 12,000\$. This figure remains relatively flexible since the final number of site visits will depend on the total amount of financing procured.

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Thank you, Mrs. West, for your kind attention to this matter. If further information is required, please contact me at the address listed below.

Sincerely,

Taha B.M.J. Ouarda  
INRS-Eau, 2800 Einstein  
C.P. 7500  
Sainte-Foy, Quebec, G1V 4C7  
Canada  
Tel. (418) 654-3842  
Fax (418) 654-2600  
E-Mail [ouardata@INRS-Eau.quebec.ca](mailto:ouardata@INRS-Eau.quebec.ca)



The Canadian Society for Civil Engineering  
La Société canadienne de génie civil

August 15, 1995

Mr. Taha B.M.J. Ouarda  
INRS-Eau, 2800 Einstein  
C.P. 7500  
Sainte-Foy, QC G1V 4C7

Dear Mr. Ouarda,

Please accept our apologies for the delay in responding to your letter of June 29, 1995.

We support your excellent work and initiatives and wish you every success in your project. Unfortunately, we do not have the necessary funds available to provide financial support for your request.

Thank you for having given us the opportunity to learn about your work.

Yours truly,

A handwritten signature in black ink that reads "Leslie C. West".

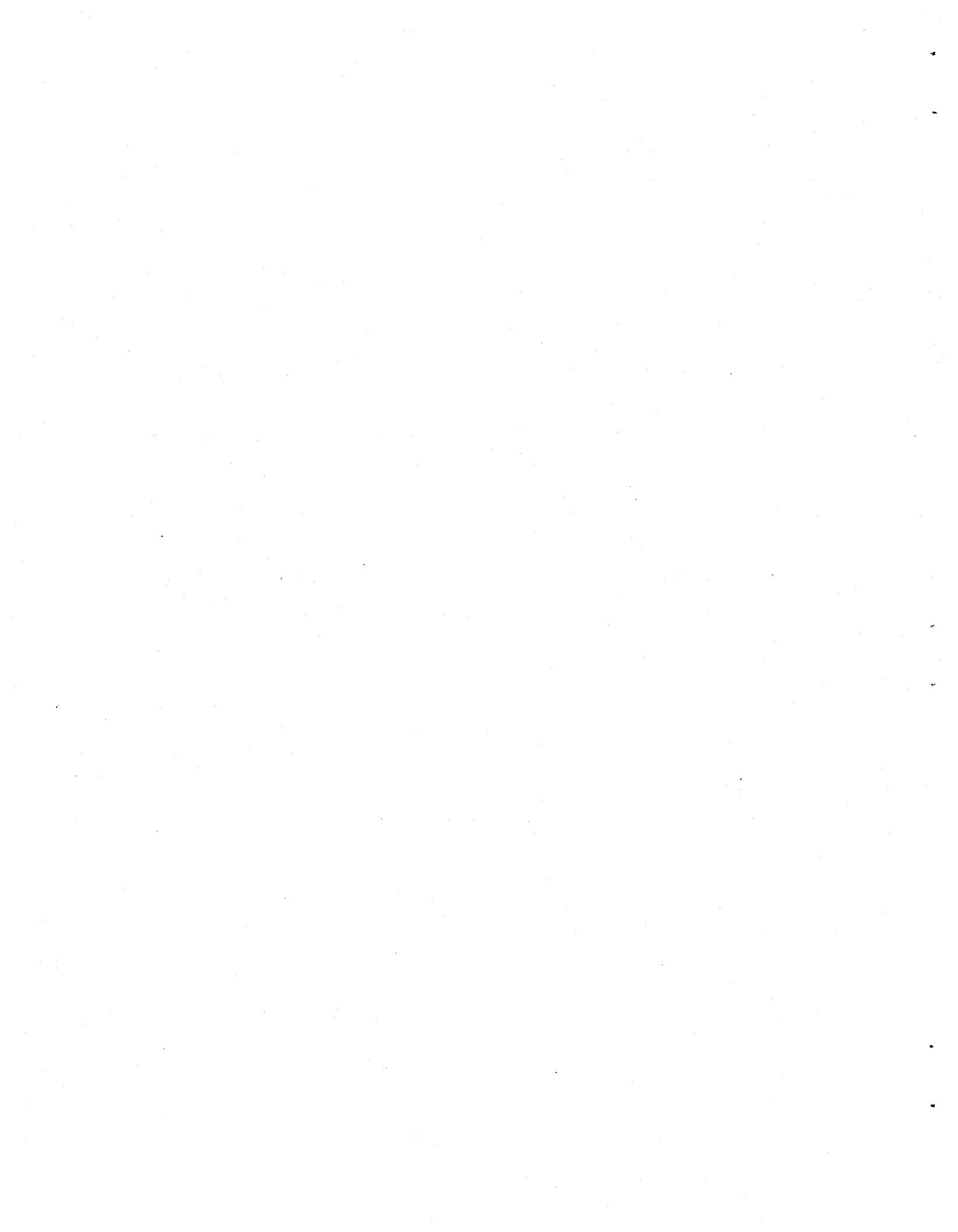
Leslie C. West  
Director of Administration

LCW/ea

2155 Guy, suite 840, Montréal, Québec H3H 2R9 Tél.: (514) 933-2634 Fax: (514) 933-3504

National Headquarters/Siège Social:

A Member Society of The Engineering Institute of Canada / une société adherente à L'Institut canadien des ingénieurs





Université du Québec

**Institut national de la recherche scientifique**

INRS-EAU

2800, rue Einstein, suite 105

Case postale 7500

Sainte-Foy, Québec, Canada

G1V 4C7

Téléphone: (418) 654-2524

Télécopieur: (418) 654-2660 (administration)

(418) 654-2600 (professeurs)

Quebec, June 12, 1995

Mrs. Tania Glavicic  
Canadian Electrical Association  
Suite 1600  
1 Westmount Square  
Montreal, Québec  
H3Z 2P9

Re.: Diffusion of technology developed by the NSERC - Hydro-Québec  
Chair in statistical hydrology at the INRS-Eau

Dear Mrs Glavicic:

Following our phone discussion, I am writing you to apply for partial funding, from the Canadian Electrical Association, to assist the statistical hydrology chair at INRS-Eau in transferring the technology developed during the last years to the other parts of Canada. This technology, the result of several research projects carried out by our group, should be of important value to other Canadians working in the field. Innovative approaches have been developed in such fields as regionalisation of flood characteristics, statistical modeling of hydrologic variables, application of new statistical distributions in hydrology, modeling of hydrologic time series, etc. One of the main recommendations of the chair reviewing committee is to organise site visits to the various potential users of this technology (universities, electric utilities,...) around Canada. The objective of this tour is to share the results of research carried out at the INRS-Eau with other Canadian users in the Hydro-electric field, especially in English speaking parts of Canada outside the province of Quebec.

We share the opinion of the review committee concerning the importance of diffusing these results to other potential users, and we believe that organising a set of site visits would be a good format to accomplish the technology transfer. Copies of all relevant publications will also be distributed during these site visits.

In order to achieve these objectives and carry out these site visits, we intend to apply for financial support from a few other sources (Canadian Society for Civil Engineering, National Science and Engineering Research Council of Canada, Canadian Water Resources Association, and the Association for Canadian Studies). It is under this framework that I am writing you to request partial financial support from the Canadian Electrical Association.

Thank you, Mrs Glavicic, for your kind attention to this matter. If you have any questions, or require further information, please contact me at the address listed below.

Sincerely,



Taha B.M.J. Ouarda  
INRS-Eau, 2800 Einstein  
C.P. 7500  
Sainte-Foy, Quebec, G1V 4C7  
Canada  
Tel. (418) 654-3842  
Fax (418) 654-2600  
E-Mail ouardata@INRS-Eau.uquebec.ca



# PROGRAMME D'ÉCHANGES INTERCULTURELS / INTER-RÉGIONAUX

## Formulaire de demande

(Annexez une feuille supplémentaire si plus de deux institutions sont concernées)

1. Nom du requérant / de la requérante

### Institution # 1

INRS-Eau

2. Personne-contact

Bernard Bobée

3. Adresse

Chaire en Hydrologie Statistique

2800, Einstein / C.P. 5500

4. Téléphone

(Québec) Ste-Foy Code postal G1V 4C7

5. Description (Joindre une description précisant les objectifs du projet, les activités prévues, les dates, ainsi que les établissements visités)

6. Visiteur(s) / visiteuse(s)

Nom

Bernard Bobée, Peter Rasmussen, Diana Guarda

Adresse

Idem au point 1

Code postal

X c.v. ci-joint

Code postal

c.v. ci-joint

### Prévisions budgétaires

1) Dépenses admissibles pour subvention

(Fournir les renseignements suivants pour chaque visiteur / visiteuse)

a) Mode de transport

avion	992.74	coll.	2 400	coût	_____
+1	537.44				
	2 530.18				

2) Dépenses prises en charge par

l'institution

(Il n'est pas nécessaire d'en faire le détail)

3) Total cumulatif

Avez-vous déjà bénéficié du programme d'échanges interculturels / inter-régionaux de l'AEC?

Oui  Non

Si oui, veuillez préciser le nombre de fois et les dates \_\_\_\_\_

Faire parvenir à l'AEC, a/s UQAM, Véz-130, C.P. 8888, Succ. Centre-Ville, Montréal (Québec) H3C 3P8  
Tel.: (514) 987-7784 Fax: (514) 987-8210 Internet: [c1915@al.uqam.ca](mailto:c1915@al.uqam.ca)



# PROGRAMME D'ÉCHANGES INTERCULTURELS / INTER-RÉGIONAUX

## Formulaire de demande

(Annexez une feuille supplémentaire si plus de deux institutions sont concernées)

### Institution # 1

1. Nom du requérant / de la requérante \_\_\_\_\_

2. Personne-contact \_\_\_\_\_

3. Adresse \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Code postal \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Téléphone \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. Description (Joindre une description précisant les objectifs du projet, les activités prévues, les dates, ainsi que les établissements visités)

6. Visiteur(s) / visiteuse(s)

Nom \_\_\_\_\_

Adresse \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Code postal \_\_\_\_\_

\_\_\_\_\_

c.v. ci-joint

Code postal \_\_\_\_\_

\_\_\_\_\_

c.v. ci-joint

### Prévisions budgétaires

1) Dépenses admissibles pour subvention

(Fournir les renseignements suivants pour chaque visiteur / visiteuse)

a) Mode de transport \_\_\_\_\_

coût \_\_\_\_\_

coût \_\_\_\_\_

2) Dépenses prises en charge par

l'institution

(Il n'est pas nécessaire d'en faire le détail)

\_\_\_\_\_

\_\_\_\_\_

3) Total cumulatif \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Avez-vous déjà bénéficié du programme d'échanges interculturels / inter-régionaux de l'AEC?

Oui \_\_\_\_\_ Non \_\_\_\_\_

Si oui, veuillez préciser le nombre de fois et les dates \_\_\_\_\_

Faire parvenir à : AEC, a/s UQAM, 1-5130, C.P. 8888, Succ. Centre-Ville, Montréal (Québec) H3C 3P8  
Tél.: (514) 987-7734; Fax: (514) 987-8210; Internet: cl015@er.uqam.ca

## **DESCRIPTION DU PROJET ET DE SES OBJECTIFS**

Le Conseil de Recherche en Sciences Naturelles et en Génie du Canada (CRSNG) avait recommandé en mai 1993 l'attribution d'une Chaire Industrielle en Hydrologie Statistique à l'INRS-Eau (voir brochures ci-jointes en Anglais et en Français). Cette Chaire vise à répondre aux besoins futurs dans le domaine des sciences de l'eau et en hydrologie statistique pour le Canada et plus particulièrement pour le Québec. En tant que titulaire de la Chaire, professeur Bernard Bobée a fait parvenir en novembre 1994 au CRSNG (organisme qui contribue avec Hydro-Québec au financement de cette chaire) un rapport d'avancement des travaux après 18 mois d'activités. Le Comité visiteur du CRSNG a examiné ce rapport et a fait part de ses commentaires à l'INRS-Eau (voir Annexe pour les commentaires du comité et la réponse de Bernard Bobée). La principale recommandation des membres du Comité concerne la diffusion des résultats des travaux de recherche de la Chaire et l'établissement de relations de partenariat avec les compagnies hydroélectriques, agences gouvernementales et universités au Canada entier, et en particulier avec le Canada anglais. Pour répondre à cette recommandation nous avons l'intention d'organiser des visites/séminaires dans quelques villes importantes du Canada (Halifax, Montréal, Toronto, et Vancouver).

Cette action sera bénéfique à plusieurs titres:

- d'abord, en partageant les résultats de la recherche menée au sein de la Chaire en Hydrologie Statistique à l'INRS-Eau avec les utilisateurs canadiens à l'extérieur du Québec dans les milieux gouvernementaux, privés et universitaires;
- en assurant un transfert de technologie entre les différentes régions du Canada;
- en créant des liens, et/ou en renforçant les liens déjà existants entre les experts du Québec et ceux des autres régions du Canada;
- en permettant une compréhension globale, à l'échelle de tout le pays, des problèmes et approches de solutions dans le domaine de l'hydrologie;
- en assurant un contact fructueux entre les communautés scientifiques francophone et anglophone;
- enfin, en établissant un lien d'échange entre la communauté scientifique hydrologique et ceux qui sont impliqués dans l'application des connaissances hydrologiques dans les différents domaines des ressources en eau.

C'est pourquoi, le personnel de la Chaire souhaite effectuer des visites d'institutions canadiennes (compagnies hydroélectriques, ministères, universités) afin d'y organiser la présentation de leurs activités et de leurs résultats de recherches. C'est dans ce cadre que

la Chaire fait cette demande de subvention auprès du programme d'échanges inter culturels/ inter-régionaux de l'Association d'études Canadiennes. Quatre visites ont été planifiées dans les villes suivantes: Halifax, Montréal, Toronto, et Vancouver, pour rejoindre la plus grande partie des scientifiques susceptibles d'être intéressés. Des institutions hôtes ont déjà exprimé un grand intérêt pour collaborer à l'organisation de ces visites et pour recevoir des représentants de notre équipe. La Chaire s'est engagé à couvrir entièrement les charges des deux premières visites (Montréal, et Halifax), et les institutions hôtes ont indiqué qu'elles étaient prêtes à prendre en charge certaines dépenses reliées à l'organisation des présentations (dépenses de secrétariat, support administratif, équipement audiovisuel, salles de conférences, annonce de la visite pour y inviter des scientifiques). La présente demande de subvention concerne une portion des frais de transport (2200.00 \$) pour les deux dernières visites. Il est prévu que les Professeurs Bernard Bobée et Peter Rasmussen participeront à la visite à Toronto (institution hôte: Ontario-Hydro), et que le Professeur Bernard Bobée et le Docteur Taha Ouarda effectueront la visite à Vancouver (institution hôte: B.C.-Hydro).

## **ANNEXE C**

**Atelier de Montréal  
le 8 novembre 1996**



## INVITATION

<b>SUJET</b>	: Chaire en hydrologie statistique Présentation des projets de la chaire
<b>DATE</b>	: Le 8 novembre 1996
<b>HEURE</b>	: 9h00 à 12h30
<b>LIEU</b>	: Amphithéâtre d'Hydro-Québec 75, boul. René-Lévesque Ouest, niveau mezzanine Montréal

Madame,

Monsieur,

A titre de responsable de la chaire en hydrologie statistique Hydro-Québec / CRSNG établie à l'Institut de recherche scientifique (INRS)-Eau, je suis heureux de vous inviter à assister à la présentation des activités et des résultats obtenus jusqu'à maintenant dans le cadre de cette chaire. Cette réunion aura lieu le 8 novembre de 9h00 à 12h30 à l'amphithéâtre d'Hydro-Québec, à la mezzanine du siège social, 75, boulevard René-Lévesque Ouest, à Montréal.

La chaire en hydrologie statistique a été créée en mai 1993 et est financée en partie par Hydro-Québec et le conseil de recherches en sciences naturelles et en génie du Canada. Des communications sur les six projets de la chaire seront faites par les chercheurs de l'INRS-Eau et de leurs partenaires d'Hydro-Québec. La réunion sera présidée par le Dr. Nassir El-Jabi, directeur de l'École de génie de l'Université de Moncton. Veuillez consulter l'ordre du jour de la rencontre annexé à cette lettre pour plus de détails.

Afin de nous permettre de mieux planifier l'organisation de cette rencontre, veuillez remplir le formulaire ci-joint pour vous ou pour un de vos collaborateurs. L'équipe de la chaire vous invite également à un léger buffet, à la suite de cette réunion, pour poursuivre de manière informelle les discussions.

*Bernard Bobée*

Bernard Bobée

Titulaire de la chaire en hydrologie statistique

Hydro-Québec / CRSNG

p.j.: Ordre du jour

*X*

**Coupon-réponse**

**Prière de vous inscrire avant le 6 novembre 1996 en retournant ce coupon-réponse à:**

HYDRO-QUÉBEC - Service Prévisions

Complexe Desjardins, Tour de l'est, 9ième étage

C.P. 10000, Montréal (Québec) H5B 1H7

à l'attention de M. Jean-Louis Bisson

(Tél.: 514-289-4093 - Fax.: 514-289-4687)

Nom: \_\_\_\_\_

Fonction: \_\_\_\_\_

Institution ou Compagnie: \_\_\_\_\_

Adresse: \_\_\_\_\_ Code postal: \_\_\_\_\_

Téléphone: (        ) \_\_\_\_\_ Télécopieur: (        ) \_\_\_\_\_

OUI j'assisterai au buffet

NON je n'assisterai pas au buffet

**PRÉSENTATION DES ACTIVITÉS  
DE LA CHAIRE EN HYDROLOGIE STATISTIQUE  
(HYDRO-QUÉBEC / CRSNG)**

8 novembre 1996

**Président et modérateur: Dr Nassir El-Jabi  
Directeur, École de Génie de l'Université de Moncton (Nouveau-Brunswick)**

9h - 9h10	Introduction	Bernard Bobée
9h10 - 9h30	C1: Validation des apports historiques	Mario Haché Marc Durocher
9h30 - 9h50	C2: Étude des séries historiques d'apports énergétiques annuels	Luc Perreault Denis Tremblay
9h50 - 10h10	C3: Détermination des crues de conception	Hugues Perron Pierre Bruneau
10h10 - 10h30	PAUSE	
10h30 - 10h50	C4: Élaboration d'un modèle stochastique appliqué aux systèmes hydriques d'envergure	Peter Rasmussen Laura Fagherazzi
10h50 - 11h10	C5: Régionalisation des événements hydrologiques extrêmes	Taha Ouarda Pierre Bruneau
11h10 - 11h30	C6: Risque et fiabilité en hydrologie	Taha Ouarda André Turgeon
11h30 - 11h40	Conclusion et orientations futures	Jean-Louis Bisson
11h40 - 12h30	Discussion  (Modérateur: Nassir El-Jabi)	



**PARTICIPANTS À LA PRÉSENTATION DES ACTIVITÉS  
DE LA CHAIRE CRSNG / HYDRO-QUÉBEC EN HYDROLOGIE STATISTIQUE**  
**Montréal, le 8 novembre 1996**

---

■ ***INRS-Eau***

Jean-Pierre Villeneuve  
**Directeur**

Bernard Bobée  
**Titulaire de la Chaire**

Nassir El-Jabi  
**Université de Moncton**

Mario Haché  
Taha Ouarda  
Luc Perreault  
Hugues Perron  
Peter Rasmussen  
**Équipe de la Chaire**

■ ***ORGANISMES***

Van-T. Nguyen  
**McGill University**

Saad Bennis  
**ÉTS**

J.P. Boucher  
André Carpentier  
V. D.Hoang  
**Environnement et Faune du Québec**

B. Houle  
Louis Mathier  
**HMS Énergie inc.**

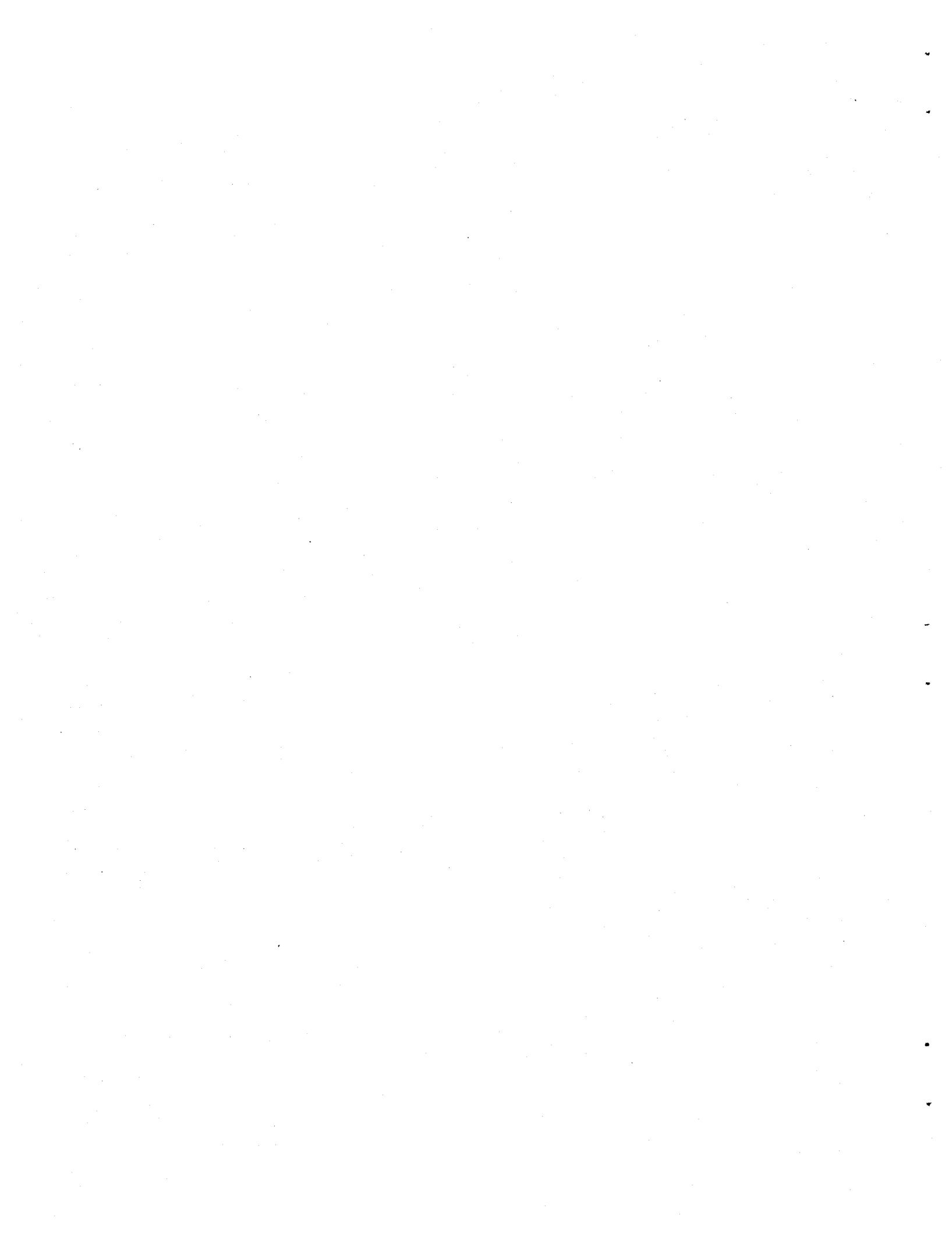
H. Khouri  
**Hydrosult**

Ralph Silver  
**Technik-Eaucan**

■ ***HYDRO-QUÉBEC***

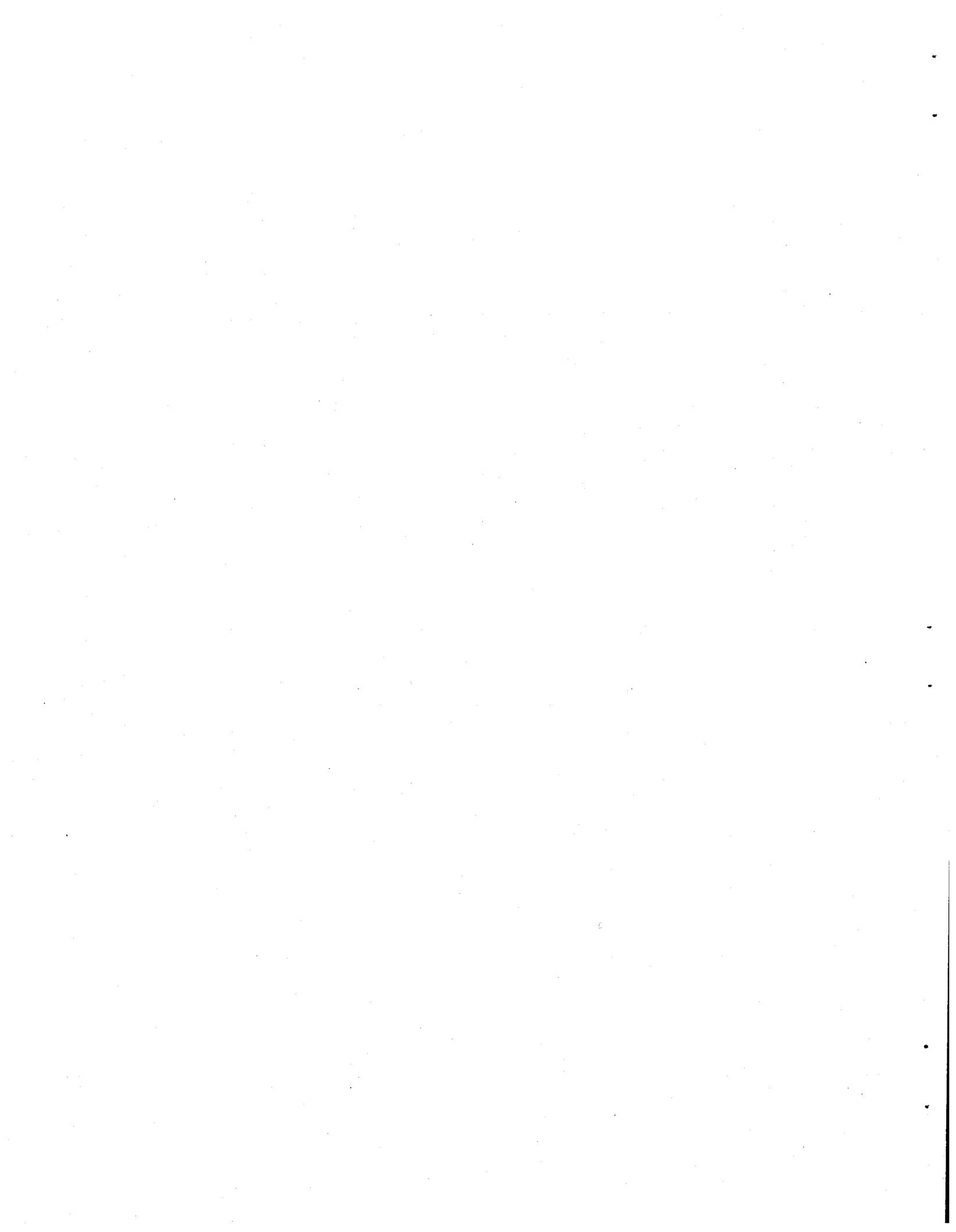
Octave Caron  
Gilbert Neveu  
Jean-Louis Bisson  
**Comité aviseur**

A. Bahi  
Chantal Bitton  
Jacques Bourret  
M.H. Briand  
Pierre Bruneau  
A.S. Conde  
M. J. Doray  
Marc Durocher  
Jacques Fontaine  
Narut Kang  
Pierre Legendre  
Joseph Ribeiro  
René Roy  
Douglas Sparks  
A. Toure  
Denis Tremblay  
André Turgeon



## **ANNEXE D**

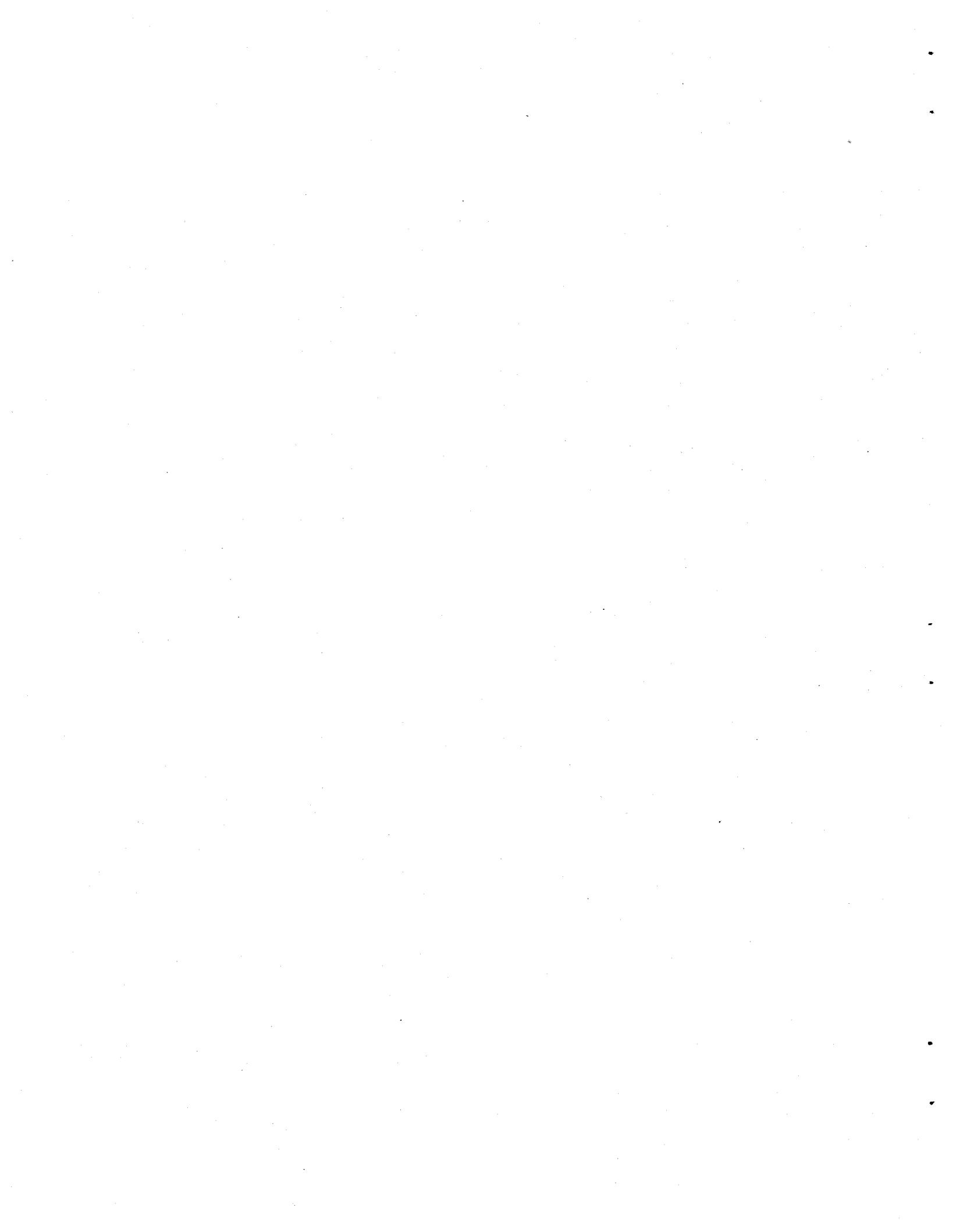
**Atelier de Toronto  
le 12 novembre 1996**



**NSERC - Hydro-Quebec Chair in Statistical Hydrology at the INRS-Eau  
National Institute for Scientific Research**

**Workshop on "Recent Developments in Hydrologic Analysis for Hydroelectric Systems"  
Ontario-Hydro, Toronto - November 12, 1996**

Chairperson:	René Roy, Hydro-Québec
9:00 - 9:05	Introduction. Ion Corbu, Ontario-Hydro
9:05- 9:15	General Presentation. P. Rasmussen, INRS-Eau
9:15 - 9:45	C <sub>1</sub> : Validation of Historic Inflows to hydroelectric sites. P. Rasmussen, INRS-Eau
9:45 - 10:15	C <sub>2</sub> : Study of Historic Energy Inflow Series. T. Ouarda, INRS-Eau
10:15 - 10:30	Health break
10:30 - 11:00	C <sub>3</sub> : Estimation of Hydrological Extreme Events. T. Ouarda, INRS-Eau
11:00 - 11:30	C <sub>4</sub> : Stochastic Modeling of Large Scale hydropower Systems. P. Rasmussen, INRS-Eau
11:30 - 12:00	C <sub>5</sub> : Regional Estimation of Hydrological Extreme Events. T. Ouarda, INRS-Eau
12:00 - 13:30	Lunch
13:30 - 14:00	C <sub>6</sub> : Hydrologic Risk and Reliability Associated with Hydroelectric Systems. T. Ouarda, INRS-Eau
14:00 - 14:30	Real-Time Validation of Water Levels (ALCAN). P. Rasmussen, INRS-Eau
14:30 - 15:00	Use of Statistical Methods for the Rationalization of Hydrometric Networks (Environment Canada, Ministry of the Environment of Quebec). T. Ouarda, INRS-Eau
15:00 - 15:15	Health Break
15:15 - 17:00	Discussions, Local research and practice needs. Moderators: Ion Corbu, Ontario-Hydro Paul Pilon, Environment Canada



Toronto, October 09, 1996

**RE: Workshop on "Recent Developments in Hydrologic Analysis for Hydroelectric Systems", Ontario-Hydro, Toronto, Ontario, 9:00 AM, November 12, 1996**

We are pleased to invite you to participate in the workshop on "Recent Developments in Hydrological Analysis for Hydroelectric Systems" that will be held at Ontario-Hydro, Toronto, November 12, 1996. The objective of this workshop is to enhance the exchange of scientific knowledge between the different parts of Canada, and to share the experience developed over the last few years by the NSERC - Hydro-Quebec industrial chair in statistical hydrology at INRS-Eau, Quebec, with the other provinces of Canada. Attendance is free of charge, but limited to 25 persons operating in the field of statistical and stochastic hydrology.

The industrial chair in statistical hydrology at INRS-Eau is co-funded by Hydro-Quebec and NSERC (National Sciences and Engineering Research Council of Canada). A presentation of different research projects led by the staff of the chair should be of special interest to other Canadians working in the field. Innovative approaches have been developed in such fields as regional estimation of flood characteristics, statistical modeling of hydrologic variables, study of the robustness of estimation models, modeling of hydrological time series, study of energy inflow series, etc. One of the main recommendations of the NSERC review committee has been to organize site visits to the various potential users of this technology (hydropower companies, universities, governmental agencies, etc.) around Canada. The objective of these workshops is to share the experience and the results of research carried out at INRS-Eau with other Canadian users in the Hydrologic field, especially in the English speaking parts of Canada outside the province of Quebec. These workshops aim also at creating a forum for discussion and exchange within the hydrologic community. The chair can also gain from the experience of the various participants and identify future research needs for the next phase of the chair (1998-2003). Copies of relevant publications will be distributed during these site visits. Direct benefits from implementing the methodologies developed at the INRS-Eau, will be shown, and software developed by the Chair will also be demonstrated.

We believe in the importance of promoting a better communication within the hydrologic community, especially between universities and other research institutions, and practitioners operating in the various fields of water resources. With this workshop, we hope to strengthen the scientific dialog between the French and the English speaking sections of the hydrological community.

We look forward to your participation by returning the enclosed reply form, and to seeing you in Toronto on the 12th of November.

Best regards

Ion Corbu,  
Ontario-Hydro

Name:
Address:
Phone / Fax / Email:

I will attend the workshop on:  
*"Recent Developments in Hydrologic Analysis for Hydroelectric Systems"*  
to be held November 12, 1996 at Ontario-Hydro, Toronto (Ontario).

YES

NO

**PLEASE RESPOND BEFORE OCTOBER 25, 1996.**

Enclosures

**PARTICIPANTS À LA PRÉSENTATION DES ACTIVITÉS  
DE LA CHAIRE CRSNG / HYDRO-QUÉBEC EN HYDROLOGIE STATISTIQUE**  
**Toronto, le 12 novembre 1996**

---

■ **INRS-Eau**

**Taha Ouarda**  
**Peter Rasmussen**

■ **ORGANISMES**

**René Roy**  
**Hydro-Québec**

**Hanson Cheng**  
**Ewa Milewska**  
**Syed Moin**  
**Paul Pilon**  
**Dapei Wang**  
**Environnement Canada**

**Chadih Chang**  
**Wayne Frset**  
**Ontario Ministry of Natural Resources**

**Barry Adams**  
**University of Toronto**

**Rick Cousins**  
**Semiu Lawal**  
**Lake of the Woods Secretariat**

**Ivan Lorant**  
**M.M. Dillon limited**

**Rob Bishop**  
**Marshall MacLein Monaghan**

■ **ONTARIO HYDRO**

**Ion Corbu**  
**Rob Carson**  
**Don Ferko**  
**Don Lam**  
**Tony Leung**  
**Grant Smith**  
**Charlie Stevens**  
**Tao Tao**  
**John Witherspoon**



# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

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NAME B. J. Adams

ADDRESS Dept. of Civil Engng., Univ. of Toronto, Toronto M5S 1AA

PHONE / FAX / E-MAIL (416) 978-3096 / (416) 978-6813 / adams@civ.utoronto.ca

1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?

Very well. A very useful insight into INRS-Eau / Hydro Quebec activities

2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?

Flood Frequency Analysis

Stochastic Analysis & Modelling of Streamflow

Optimal Reservoir Operation

3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?

All presentations were very relevant

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

*The level of detail was appropriate.*

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

*Certainly "important" issues were addressed.*

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

*Urban hydrologic applications?*

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*Yes, definitely.*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*Very worthwhile.*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

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NAME Semiu A. Lawal  
ADDRESS Lake of the Woods Control Board  
Ottawa Ontario K1A 0H3  
PHONE / FAX / E-MAIL (819) 997 2529  
Fax

1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?

Very well

2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?

Risk analysis  
Reservoir level  
and  
options

3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?

C1, C4 C6, C7 and C8

Note  
Please, I would also like to have hard copies  
of your presentation overheads of the above  
work.

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

Just fine

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

Yes

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

Reservoir Optimization

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

Yes

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

It would be nice if hard copies of your presentations were available.

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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NAME

Rob Carson

ADDRESS

ONTARIO HYDRO 700 UNIVERSITY AVE  
TORONTO M5G 1X6

PHONE / FAX / E-MAIL

(416) 592-7879

1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?

VERY INTERESTING, WELL PACED  
FOR COMPLEX TOPICS.

2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?

HYDROMETRIC NETWORKS, DATA,  
HYDRAULIC AND HYDROLOGIC  
STUDIES TO SUPPORT OPERATIONS.

3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?

C1, ACCAN REAL-TIME VALIDATION,  
RATIONALIZATION.

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

*YES. PAPERS CAN BE REVIEWED  
FOR DETAIL.*

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

*YES.*

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

*CONTINUE ON.*

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*DEFINITELY. MORE EXCHANGE  
WOULD BENEFIT ALL.*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
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NAME

JON CORBETT

ADDRESS

PHONE / FAX / E-MAIL

**1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

EXCELLENT.  
CONGRATULATIONS.

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

- OPERATION OF HYDROELECTRIC SYSTEMS
- CLIENT-SERVER INFORMATION SYSTEMS  
(DATA BASE + APPLICATION) FOR  
HYDROELECTRIC UTILITIES

**3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

ALL PRESENTATIONS WERE  
HIGHLY ~~HIGHLY~~ BENEFICIAL

4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?

IT WAS OK.

5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?

YES

IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?

PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?

TRANSFORM THE CHAIR IN STATISTICAL HYDROLOGY INTO AN INTERNATIONAL RESEARCH CENTRE OF EXCELLENCE.

6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?

YES.

ANY ADDITIONAL COMMENTS OR SUGGESTIONS:

KEEP ON DOING THIS EXCELLENT WORK

PLEASE DEPOSIT IN THE ENVELOPE.

THANK YOU.

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

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NAME

Dr. Dapei Wang

ADDRESS

Hydrology Division, AES, Envir. Canada Ottawa K1A 0H3

PHONE / FAX / E-MAIL

613-992-0607 / 4288 / WANGD@AESOTT.AM.DOE.CA

**1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

Very well

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

Data Validation

Network Management

**3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

Data Validation

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

*National standard in Hydro data acquisition*

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*Successful workshop.*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

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NAME Donald Lutz

ADDRESS 700 UNIVERSITY AVE

PHONE / FAX / E-MAIL (416) 592-8178 / (416) 592-4446 / donaldlutz@hydro.on.ca

1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?

Very Good !!

Several good topics presented  
We have similar hydrologic problems  
and are encouraged by the solutions.

2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?

C1

C3

C4

C5

3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?

C1

C3

C5

4. WERE THE PRESENTATIONS DETAILED ENOUGH ? Yes  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ? 190

5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?

*Some Good Discussions/Comments*

IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?

PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?

6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?

*Definitely*

*It is good to know how others have solved similar hydrologic problems.*

ANY ADDITIONAL COMMENTS OR SUGGESTIONS:

*This is a very good forum*

PLEASE DEPOSIT IN THE ENVELOPE.

THANK YOU.

Peter and Taha:

I had to leave early and did not have a chance to fill out the feedback form. I am doing it on the computer, because of my terrible hand-writing.

Ewa

## FEEDBACK FORM

I would like to receive the following papers (I did not take a note of the numbers on the display, only the titles):

- ADJUST II Software for Hydrological Analysis
- Presentation and Review of some methods for regional flood frequency analysis
- A perspective on the annual max. flood approach to flood frequency analysis
- Towards sustainable hydrometric data collection network...
- Estim. and valid. of contemporaneous PARMA model to streamflow simulation
- REMUS - Soft. to fill in missing data

NAME Milewska Ewa, CCRM

ADDRESS Atmospheric Environment Service  
Climate Research Branch  
4905 Dufferin Street  
Downsview, Ontario, M3H 5T4

PHONE/FAX/E-MAIL (416) 739 4349 / (416) 739 5700 / [milewskae@am.dow.on.doe.ca](mailto:milewskae@am.dow.on.doe.ca)

1. I basically came to listen to the presentations on extreme values analysis and networks rationalization and I found them interesting.
2. Primary topics of my interest: Climate Network Assessment using SOI (developed some software too), time series of lakes surface water temperature using remote sensing, storm rainfall analysis, some other in our division: re-analysis of precip. and temp. data using homogeneity testing and corrections for types of rain gauges, etc., seasonal weather prediction, teleconnections, ex. ENSO and droughts, analysis of proxy data (bore holes, tree rings), extreme waves, etc.
3. Presentations most related to activities in our division: extreme value analysis C3, C5 and "Use of statistical methods for the rationalization...."
4. It would have been useful to receive copies of slides, especially the ones with equations, so even if you have to skip some of them due to time constraints, it would still be possible to look at them later.

5. I cannot comment on this one, since I had to leave early and did not participate in the final discussion.
6. Yes, definitely.

I would like to thank you for letting us know about the workshop and inviting us to participate.

With regards,

Ewa

A handwritten signature in black ink, appearing to read "Ewa Jelen". The signature is fluid and cursive, with "Ewa" on top and "Jelen" below it, though the two words are somewhat interconnected.

November 12, 1996

**ANNEXE E**

**Atelier de Vancouver  
le 14 novembre 1996**



**NSERC - Hydro-Quebec Chair in Statistical Hydrology at the INRS-EAU**  
**National Institute for Scientific Research**

Workshop on "Recent Developments in Statistical Hydrology"  
Central Auditorium, B.C. Hydro, Burnaby, B.C., November 14, 1996

Chairperson:	Vit Klemes
9:00 - 9:05	Introduction. Y. Alila, U.B.C.
9:05- 9:15	General Presentation. P. Rasmussen, INRS-Eau
9:15 - 9:45	C <sub>1</sub> : Validation of Historic Inflows. P. Rasmussen, INRS-Eau
9:45 - 10:15	C <sub>2</sub> : Study of Historic Energy Inflow Series. T. Ouarda, INRS-Eau
10:15 - 10:30	Health break
10:30 - 11:00	C <sub>3</sub> : Estimation of Hydrological Extreme Events. T. Ouarda, INRS-Eau
11:00 - 11:30	C <sub>4</sub> : Stochastic Modeling of Large Scale Water Systems. P. Rasmussen, INRS-Eau
11:30 - 12:00	C <sub>5</sub> : Regional Estimation of Hydrological Extreme Events. T. Ouarda, INRS-Eau
12:00 - 13:30	Lunch
13:30 - 14:00	C <sub>6</sub> : Risk and Reliability in Hydrology. T. Ouarda, INRS-Eau
14:00 - 14:30	Real-Time Validation of Water Levels (ALCAN). P. Rasmussen, INRS-Eau
14:30 - 15:00	Use of Statistical Methods for the Rationalization of Hydrometric Networks (Environment Canada, Ministry of the Environment of Quebec). T. Ouarda, INRS-Eau
15:00 - 15:15	Health Break
15:15 - 17:00	Discussions, Local research and practice needs. Moderator: W. Q. Chin, B. C. Hydro

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

*yes*

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

*yes*

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*yes , very much so .*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*excellent exchange of info*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

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NAME

ION CORBAN

ADDRESS

PHONE / FAX / E-MAIL

**1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

EXCELLENT.  
CONGRATULATIONS.

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

- OPERATION OF HYDROELECTRIC SYSTEMS
- CLIENT - SERVER INFORMATION SYSTEMS  
(DATA BASE + APPLICATIONS) FOR  
HYDROELECTRIC UTILITIES

**3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

ALL PRESENTATIONS WERE  
HIGHLY ~~HIGHLY~~ BENEFICIAL

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

*IT WAS OR.*

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

*YES*

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

*TRANSFORM THE CHAIR IN STATISTICAL HYDROLOGY INTO AN INTERNATIONAL RESEARCH CENTRE OF EXCELLENCE.*

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*YES.*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*KEEP ON DOING THIS EXCELLENT WORK.*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

## **FEEDBACK FORM**

**PLEASE INDICATE THE NUMBERS OF PUBLICATIONS YOU WISH TO RECEIVE**

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NAME Dr. Dapei Wang

ADDRESS Hydrology Division, AES, Envir. Canada, Ottawa K1A 0H3

**PHONE / FAX / E-MAIL**

613-992-0607 / 4288 / WANGD @ AESOTT. AM. DOE. CA

## **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

Very well

## **2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST?**

## Data Validation

## Network Management

### **3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES?**

## Data Validations

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

*National standard in Hydro data acquisition*

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*Successful workshop.*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

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NAME Donald Lum

ADDRESS 700 UNIVERSITY AVE

PHONE / FAX / E-MAIL (416) 592-8178 / (416) 592-4446 / donald.lum@hydro.on.ca

**1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

Very Good !!

Several good topics presented  
We have similar hydrologic problems  
and are encouraged by the solutions.

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

C1

C3

C4

C5

**3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

C1

C3

C5

4. WERE THE PRESENTATIONS DETAILED ENOUGH ? Yes  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ? No

5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?

*Some Good Discussions/Comments*

IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?

PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?

6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?

*Definitely*

*It is good to know how others have solved similar hydrologic problems.*

ANY ADDITIONAL COMMENTS OR SUGGESTIONS:

*This is a very good forum*

PLEASE DEPOSIT IN THE ENVELOPE.

THANK YOU.

Peter and Taha:

I had to leave early and did not have a chance to fill out the feedback form. I am doing it on the computer, because of my terrible hand-writing.

Ewa

## FEEDBACK FORM

I would like to receive the following papers (I did not take a note of the numbers on the display, only the titles):

- ADJUST II Software for Hydrological Analysis
- Presentation and Review of some methods for regional flood frequency analysis
- A perspective on the annual max. flood approach to flood frequency analysis
- Towards sustainable hydrometric data collection network...
- Estim. and valid. of contemporaneous PARMA model to streamflow simulation
- REMUS - Soft. to fill in missing data

NAME Milewska Ewa, CCRM

ADDRESS Atmospheric Environment Service  
Climate Research Branch  
4905 Dufferin Street  
Downsview, Ontario, M3H 5T4

PHONE/FAX/E-MAIL (416) 739 4349 / (416) 739 5700 / milewskae@am.dow.on.doe.ca

1. I basically came to listen to the presentations on extreme values analysis and networks rationalization and I found them interesting.
2. Primary topics of my interest: Climate Network Assessment using SOI (developed some software too), time series of lakes surface water temperature using remote sensing, storm rainfall analysis, some other in our division: re-analysis of precip. and temp. data using homogeneity testing and corrections for types of rain gauges, etc., seasonal weather prediction, teleconnections, ex. ENSO and droughts, analysis of proxy data (bore holes, tree rings), extreme waves, etc.
3. Presentations most related to activities in our division: extreme value analysis C3, C5 and "Use of statistical methods for the rationalization...."
4. It would have been useful to receive copies of slides, especially the ones with equations, so even if you have to skip some of them due to time constraints, it would still be possible to look at them later.

5. I cannot comment on this one, since I had to leave early and did not participate in the final discussion.
6. Yes, definitely.

I would like to thank you for letting us know about the workshop and inviting us to participate.

With regards,

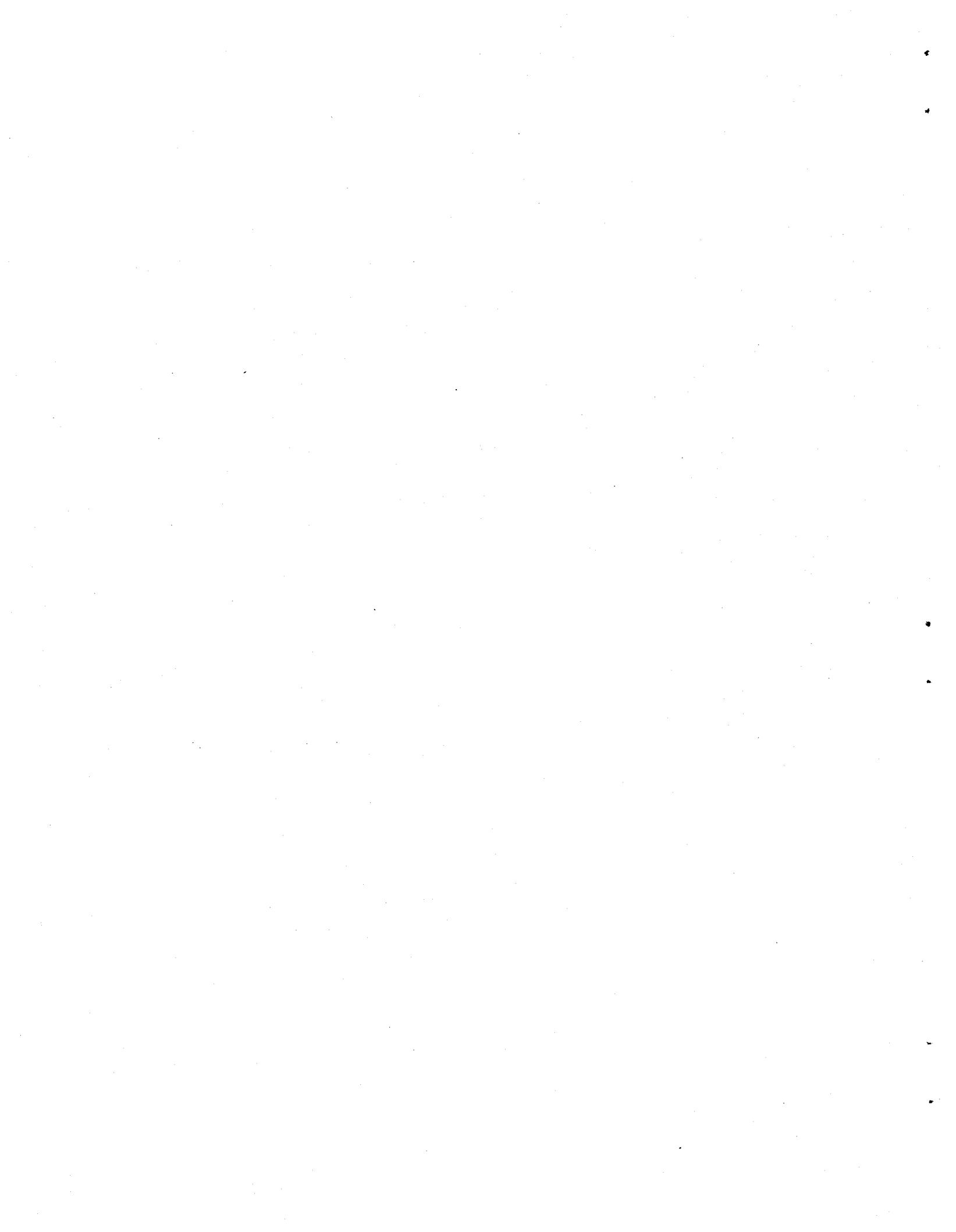
Ewa

*Ewa Nalewajka*

November 12, 1996

**ANNEXE E**

**Atelier de Vancouver  
le 14 novembre 1996**



**NSERC - Hydro-Quebec Chair in Statistical Hydrology at the INRS-EAU**  
**National Institute for Scientific Research**

Workshop on "Recent Developments in Statistical Hydrology"  
Central Auditorium, B.C. Hydro, Burnaby, B.C., November 14, 1996

Chairperson:	Vit Klemes
9:00 - 9:05	Introduction. Y. Alila, U.B.C.
9:05- 9:15	General Presentation. P. Rasmussen, INRS-Eau
9:15 - 9:45	C <sub>1</sub> : Validation of Historic Inflows. P. Rasmussen, INRS-Eau
9:45 - 10:15	C <sub>2</sub> : Study of Historic Energy Inflow Series. T. Ouarda, INRS-Eau
10:15 - 10:30	Health break
10:30 - 11:00	C <sub>3</sub> : Estimation of Hydrological Extreme Events. T. Ouarda, INRS-Eau
11:00 - 11:30	C <sub>4</sub> : Stochastic Modeling of Large Scale Water Systems. P. Rasmussen, INRS-Eau
11:30 - 12:00	C <sub>5</sub> : Regional Estimation of Hydrological Extreme Events. T. Ouarda, INRS-Eau
12:00 - 13:30	Lunch
13:30 - 14:00	C <sub>6</sub> : Risk and Reliability in Hydrology. T. Ouarda, INRS-Eau
14:00 - 14:30	Real-Time Validation of Water Levels (ALCAN). P. Rasmussen, INRS-Eau
14:30 - 15:00	Use of Statistical Methods for the Rationalization of Hydrometric Networks (Environment Canada, Ministry of the Environment of Quebec). T. Ouarda, INRS-Eau
15:00 - 15:15	Health Break
15:15 - 17:00	Discussions, Local research and practice needs. Moderator: W. Q. Chin, B. C. Hydro



**Maintenance, Engineering and Projects**

Hydrotechnical

Bill Chin, Ph.D., P.Eng.

Phone: (604) 528-2747

Fax: (604) 528-2558

Internet: bill.chin@bchydro.bc.ca

22 October 1996

File: MEP-125.1

**Workshop on "Recent Developments in Statistical Hydrology"**  
Central Auditorium, B.C. Hydro, Burnaby, B.C., 9:00 AM, November 14, 1996

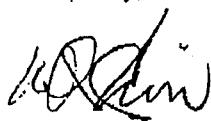
We are pleased to invite you to participate in the workshop on "Recent Developments in Statistical Hydrology" that will be held at the Central Auditorium of B.C. Hydro in Burnaby, B.C., November 14, 1996. The objective of this workshop is to enhance the exchange of scientific knowledge between the different parts of Canada, and to share the experience developed over the last few years by the NSERC - Hydro-Quebec industrial chair in statistical hydrology at INRS-Eau, Quebec, with the other provinces of Canada. Attendance is free of charge, but limited to 25 persons operating in the field of statistical and stochastic hydrology.

The industrial chair in statistical hydrology at INRS-Eau is co-funded by Hydro-Quebec and NSERC (National Sciences and Engineering Research Council of Canada). A presentation of different research projects led by the staff of the chair should be of special interest to other Canadians working in the field. Innovative approaches have been developed in such fields as regional estimation of flood characteristics, statistical modeling of hydrologic variables, study of the robustness of estimation models, modeling of hydrological time series, study of energy inflow series, etc. One of the main recommendations of the NSERC review committee has been to organize site visits to the various potential users of this technology (hydropower companies, universities, governmental agencies, etc.) around Canada. The objective of these workshops is to share the experience and the results of research carried out at INRS-Eau with other Canadian users in the Hydrologic field, especially in the English speaking parts of Canada outside the province of Quebec. These workshops aim also at creating a forum for discussion and exchange within the hydrologic community. The chair can also gain from the experience of the various participants and identify future research needs for the next phase of the chair (1998-2003). Copies of relevant publications will be distributed during these site visits. Direct benefits from implementing the methodologies developed at the INRS-Eau, will be shown, and software developed by the Chair will also be demonstrated.

We believe in the importance of promoting a better communication within the hydrologic community, especially between universities and other research institutions, and practitioners operating in the various fields of water resources. With this workshop, we hope to strengthen the scientific dialog between the French and the English speaking sections of the hydrological community.

We look forward to your participation by returning the enclosed reply form, and to seeing you in Burnaby on the 14th of November.

Yours truly,



W. Q. Chin

WQC/b

Enclosures

Name:

Address:

Phone / Fax / Email:

I will attend the workshop on: "Recent Developments in Statistical Hydrology" to be held November 14, 1996 at the Central Auditorium of B. C. Hydro, Burnaby (B.C.).

YES

NO

**PLEASE RESPOND BEFORE OCTOBER 25, 1996.**

**PARTICIPANTS À LA PRÉSENTATION DES ACTIVITÉS  
DE LA CHAIRE CRSNG / HYDRO-QUÉBEC EN HYDROLOGIE STATISTIQUE**  
**Vancouver, le 14 novembre 1996**

---

■ **INRS-Eau**

Taha Ouarda  
Peter Rasmussen

Jacques Cloutier  
Michael Sullivan  
Reg Dunkley  
**Environment Canada**  
**Atmospheric Environment Service**

■ **B.C. HYDRO**

Dave Cattanach  
Wun-Kin Cheng  
William Chin  
Don Druce  
Brian Fast  
Murray Kroeker  
Herbert Louie  
Wuben Luo  
Vladimir Plesa  
Eric Weiss

Terry Keenhan  
**Agra Earth & Environmental Ltd.**

Maurice Danard  
**Atmospheric Dynamics Corporation**

Melvin G. Schaefer  
**Consulting Engineer**

Maria Wellisch  
**MWA Consultants**

■ **ORGANISMES**

Vit Klemes  
**Water Resources Consultant**

Bruce Hunter  
**Northwest Hydraulic Consultants**

Younes Alila  
Jamie Cathcart  
Emmanual Ladalla  
Rob Millar

Joanna Barnard  
David Sellar  
**Klohn-Crippen Consultants**

Ahmed Mitraoui  
Michael Quick  
Denis Russell

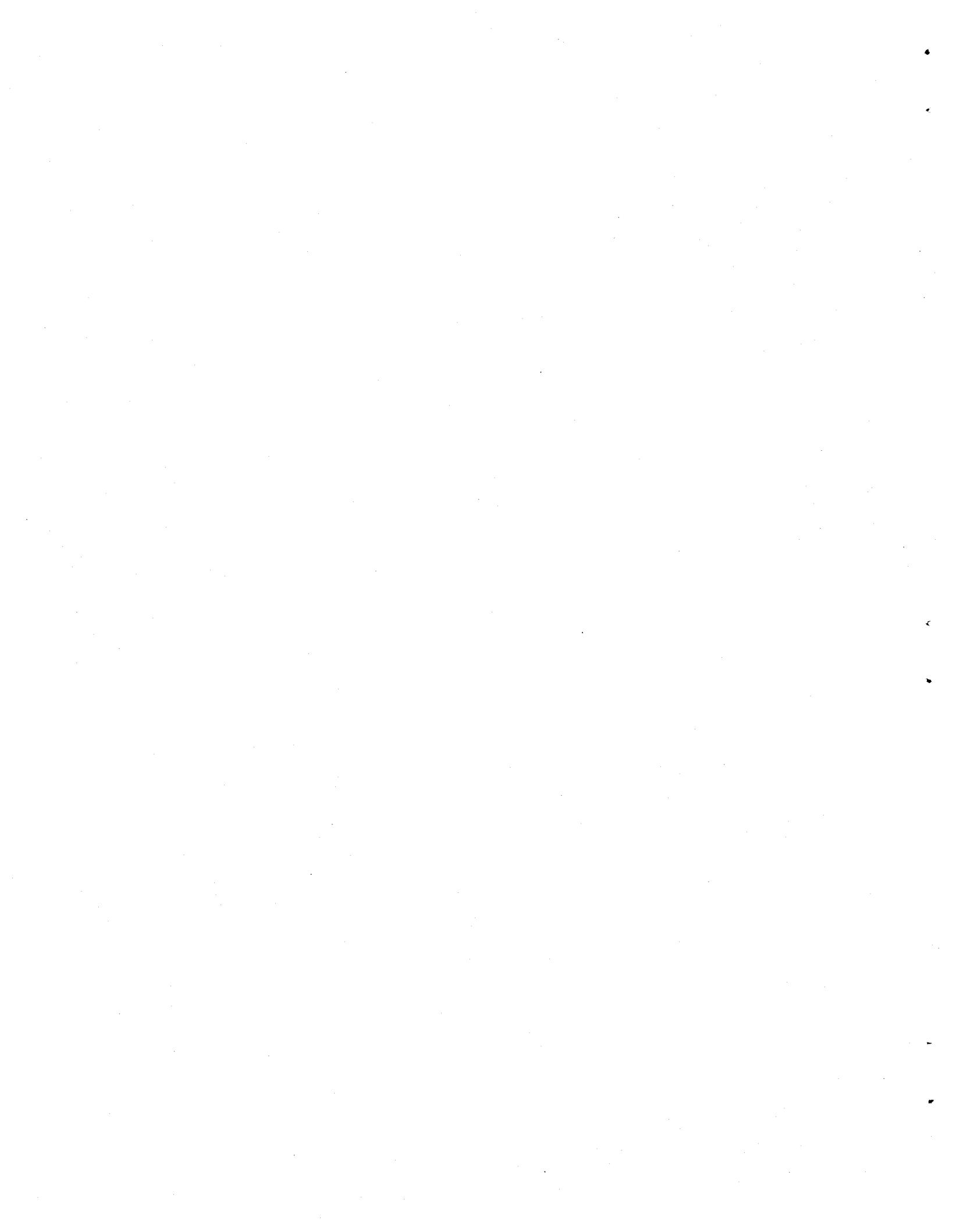
Nadja Holowaty  
**SNC Lavalin**

K.E. Ziad Shawwash  
Adam Stonewall  
Yuzhang Wang  
T.S. Wong  
**University of British Columbia**

Adrian Chantler  
**Steffen Robertson & Kirsten**

Tung Van Do  
**Charles Howard & Associates**

Hassen Yassien  
**Peter Ward & Associates**



# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF PUBLICATIONS YOU WISH TO RECEIVE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

**NAME**

MIKE SULLIVAN

**ADDRESS**

700-1200 W 73<sup>rd</sup> AVE  
VANCOUVER, B.C., V6P 6H9.

**PHONE / FAX / E-MAIL**

PH: 802-0641 E-mail - MIKE.SULLIVAN@EC.GC.CA

**1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

Very informative

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

Hydrometric network design

or

Flood frequency analysis

**3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

Hydrometric network analysis

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

*Yes*

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

*Yes*

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*yes , very much so .*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*excellent exchange of info*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

**PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE**

A horizontal strip of 18 small black-and-white photographs, each showing a different stage of a plant's life cycle. The stages range from a tiny seedling to a fully developed, flowering plant.

**NAME** NADJA HOLOWAT  
Klohn Gippen Inter  
INC - Canada, Ltd. BURRARD ST VANC V6C 3A8  
**ADDRESS** SUITE 600 - 510 (604) (604)  
PHONE / FAX / E-MAIL FAX: 604 2051 Phne 604-1126  
NTHOLLOWAT@VCR-KLOHN.COM

#### **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS?**

As I did not know what to expect - THIS is difficult to answer.

I found the percentages ~~part~~ very interesting.

- most ~~and~~ practical Applications in my line of work.

## **2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST?**

## Estimation of Hydrological Extreme Events.

# Statistical Analysis Software

# RATIONALIZATION OF HYDROLOGIC NETWORKS.

### **3 WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES?**

\* C<sub>2</sub> & C<sub>3</sub> + RATIONALIZATION OF  
HJD. NETWORKS

4. WERE THE PRESENTATIONS DETAILED ENOUGH? Yes  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL? No

5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY?

Overall Yes But PMP & PMF's should be addressed - Mod IIS + Modelling Techniques

IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED?

How to enhance poor DATA BASE

PMP & PMF Derivations

PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR?

See 5a.

6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES?

Definitely.

ANY ADDITIONAL COMMENTS OR SUGGESTIONS:

A Comparison of softwares available on the market vs INRS products (if possible) or other utilities' or Applicable softwares.

PLEASE DEPOSIT IN THE ENVELOPE.

THANK YOU.

# FEEDBACK FORM

**PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE**

NAME MEL SCHAEFER

ADDRESS 1909 HANOVER DR NESE LACEY, WA 98503

**PHONE / FAX / E-MAIL**

mgschaefer@thunator.com

## **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS?**

Very Informative

## **2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

## Estimation of Hydrologic Extremes

## Regional Analyses

### **3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

Sle 2

**4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

**5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

**6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*Absolutely*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

**PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE**

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

**NAME** *Terry KEENMAN*

ADDRESS 2227 DOUGLAS ROAD, BURNABY, BRITISH COLUMBIA  
V5C 5A9

**PHONE / FAX / E-MAIL** 604-473-5304 / 294-4664 / keenhan@istar.ca

#### **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS?**

Not very well. A lot of explanation that was general - very little on key assumptions, decisions and the outcomes (good or bad). Everything presented as perfect - the best found this unrealistic.

## **2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

## Regional Networks

### **3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES?**

## Regional Networks

ADJUST seemed like an advertisement although looks good.

4. WERE THE PRESENTATIONS DETAILED ENOUGH?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL?

MORE TECHNICAL ASSUMPTIONS  
GRAPHS

5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY?

NO. DATA NETWORKS GOING

IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED?

ROLE OF DATA & USER NEEDS

PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR?

6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES?

NOT CLEAR THAT B.C SITUATION  
ADDRESSED. COMMENTS BY  
PARTICIPANTS BUT NOT TAKEN UP

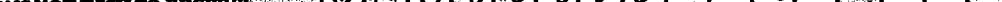
ANY ADDITIONAL COMMENTS OR SUGGESTIONS:

PLEASE DEPOSIT IN THE ENVELOPE.

THANK YOU.

# FEEDBACK FORM

**PLEASE INDICATE THE NUMBERS OF PUBLICATIONS YOU WISH TO RECEIVE**



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

Please send 3 and The overheads of C4, C5 & <sup>C8</sup> Hydrometric Neti project

**NAME** Wun-Kin Cheng

**NAME** *W... .*

**ADDRESS** *E#4 1-6911 Southpoint Drive, Burnaby, B.C. V3N 4X8*

**PHONE / FAX / E-MAIL** (604) 528-2345      E-mail: wcheng@bchydro.bc.ca

#### **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS?**

Good presentation.

I've much better understanding of your work

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

I'll like to get more information of your C4 'Stochastic modeling work.'

### **3 WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

c2 c3 c4 c5

**4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

**5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

**6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

**PLEASE INDICATE THE NUMBERS OF PUBLICATIONS YOU WISH TO RECEIVE**

A horizontal row of 20 small, rectangular boxes, each containing a number from 1 to 20. The numbers are arranged sequentially from left to right. Each box is designed to be checked off by a pen or pencil.

I'd like a copy of all the papers that are in English pls.  
+ copy of overheads?

NAME Joanna Barnard

ADDRESS Klohn-Crippen 600, 510 Burrard St  
Vancouver BC V6C 3A8

**PHONE / FAX / E-MAIL**

P 6612017 F 6612051 E jbarnard@vcr.kcln.com

## **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?**

good), occasionally a bit too theoretical but generally quite practical & relevant.

## **2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?**

## Flood frequency analysis / Risk assessment

### **3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?**

c3, c1

**4. WERE THE PRESENTATIONS DETAILED ENOUGH?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL?**

would have been nice to have some material  
to review before hand.  
presentations about the right level of detail

**5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY?**

mostly. ~~we~~ may be a bit too site specific, though it  
funded by HQ I guess that is understandable

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

• lack of data. models are great but need data to feed them  
• how to choose which sites to use in regional analysis - very hard to do in small mountainous areas  
• probability of PMP

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR? • use of PMP in risk ass't requires probability. How to assign?**

- would be nice to do some work on how methods
- apply outside Quebec eg in areas of different climate & topography
- how to make use of limited data at some sites < 10 yrs

**6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

Yes. But a shame that participation was limited. might be better to do shorter talks at a wide range of venues, for example at CWRA, CSCF, meetings, COSA.

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

- provide copies of overheads for reference .
- more time for questions on individual topics rather than long periods at end by which time we're all tired!

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**

# FEEDBACK FORM

COULD I PLEASE GET PRINTS OF THE SLIDES FOR PRESENTATION  
C3, C5, C6

NAME ADRIAN CHANTLER  
ADDRESS STEFFEN ROBERTSON & KIRSTEN  
800-580 HORNBY ST  
VANCOUVER, BC, V6C 3B6  
PHONE/FAX/EMAIL

PHONE/FAX/E-MAIL  
604 681 4196 / 604 687 5532 / achartler@srk.com

#### **1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS?**

very well.

**2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST?**

## HYDROLOGICAL EXTREME

### **3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES?**

### C<sub>S</sub> REGIONAL ESTIMATION

4. WERE THE PRESENTATIONS DETAILED ENOUGH ? YES  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ? NO.

5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?

NOT YET

IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?

IN BC FOREST HYDROLOGY IS OF PRICE  
IMPORTANCE CURRENTLY

PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?

6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?

YES, DEFINITELY

ANY ADDITIONAL COMMENTS OR SUGGESTIONS:

ATTENDANCE COULD AND SHOULD HAVE BEEN MUCH LARGER. THE BC BRANCH OF THE EWRA WOULD HAPPILY HAVE PROVIDED THIS EVENT AND INSURED MUCH WIDER DISSEMINATION OF INFORMATION

PLEASE DEPOSIT IN THE ENVELOPE.

THANK YOU.

# FEEDBACK FORM

PLEASE INDICATE THE NUMBERS OF  
PUBLICATIONS YOU WISH TO RECEIVE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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NAME S.T. WONG

VSA 156

ADDRESS Dept. of Geography, Simon Fraser University, Burnaby, B.C.,

PHONE/FAX/E-MAIL (604) 291-3712 FAX 291-5841

1. OVERALL, HOW DID THE WORKSHOP MEET YOUR EXPECTATIONS ?

up to a certain point. The workshop meeting is somewhat narrowly focussed mainly on probabilistic matters.

2. WHAT IS THE PRIMARY TOPIC OF YOUR INTEREST ?

Regional flood frequency analysis

3. WHICH PRESENTATION WAS MOST RELATED TO YOUR ACTIVITIES ?

C3 + 5

- 4. WERE THE PRESENTATIONS DETAILED ENOUGH ?  
WOULD YOU RATHER HAVE LESS PRESENTATIONS BUT WITH MORE DETAIL ?**

*Yes. The presentations were excellent.*

- 5. DO YOU FEEL THE DISCUSSIONS ADDRESSED THE URGENT ISSUES IN THE FIELD OF HYDROLOGY ?**

*Yes.*

**IF NOT, WHICH PROBLEMS DO YOU WISH TO SEE ADDRESSED ?**

**PARTICULARLY WHICH POINTS DO YOU PROPOSE FOR THE NEXT PHASE OF THE CHAIR ?**

*more on coordination in data collection & sharing research methodologies between research groups.*

- 6. DO YOU FEEL THIS KIND OF WORKSHOPS ENHANCES THE EXCHANGE BETWEEN THE VARIOUS CANADIAN INSTITUTIONS OPERATING IN THE FIELDS OF WATER RESOURCES ?**

*I hope so.*

**ANY ADDITIONAL COMMENTS OR SUGGESTIONS:**

*I find the discussions most informative and relevant  
for my hydrologic interests.*

**PLEASE DEPOSIT IN THE ENVELOPE.**

**THANK YOU.**