

Joint YESS-YHS Early Career Researcher Workshop 2018

'Towards Regional Information to Improve Our Understanding on Weather, Water and Climate Extreme Events'

3-5 May 2018, Canmore, Alberta, Canada

#GEWEX2018EarlyCareer

@YESSCommunity

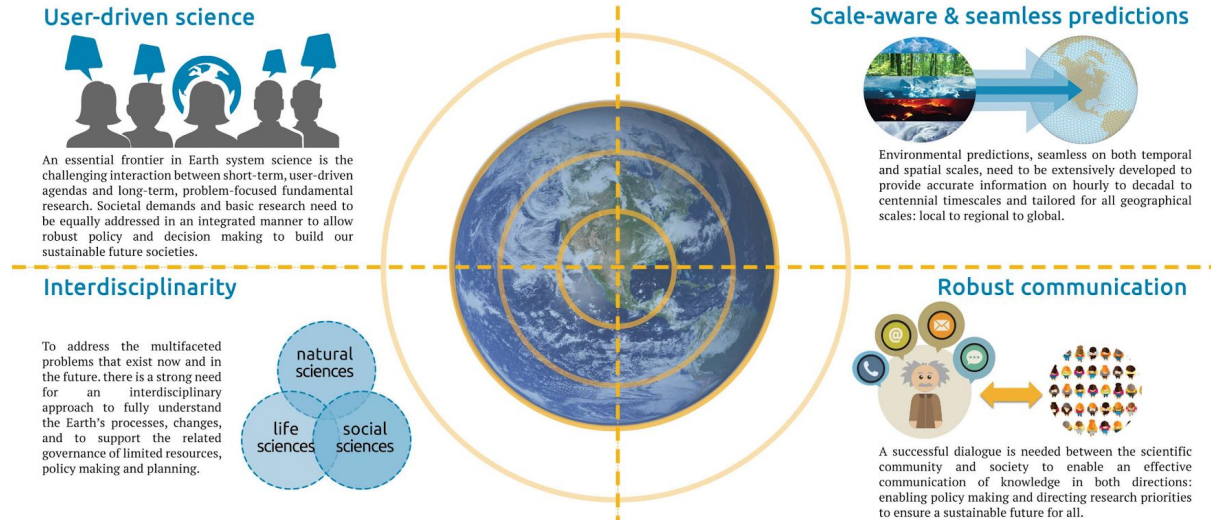
@YoungHydrology



Workshop history

- October 2015 → 2015 ECR Workshop, establishment of YESS structure, development of a white paper

Earth System Science Frontiers in the 21st century
Defined by YESS and further described in the YESS white paper



Workshop history

- **Late 2016** → YESS council started planning a **new workshop** to further discuss some topics which emerged after the 2015 ECR Workshop
- **Late 2016- Early 2017** → Development of a **workshop proposal** around the topic *“Towards a generation of better regional climate and weather information”* and presented it to WMO/WCRP.
- **September 2017** → YESS and YHS presented a proposal to **GEWEX** to organize a joint workshop around GEWEX OSC 2018 date.
- **October 2017** → WMO/WCRP/GEWEX **endorsed** the workshop. Consolidation of workshop proposal, establishment of a committee
- **November 2017 - Now** → Preparation of workshop

Workshop organizing committee, sponsors

- Caroline Aubry-Wake (University of Saskatchewan)
- Faten Attig Bahar (University of Carthage, Tunisia Polytechnic School)
- Erik Behrens (NIWA)
- Niels Claes (University of Wyoming)
- Nilay Dogulu (Middle East Technical University)
- **Carla Gulizia (CIMA/CONICET-UBA)**
- Shaun Harrigan (ECMWF)
- Gaby Langendijk (GERICS)
- Marisol Osman (CIMA/CONICET-UBA)
- Valentina Rabanal (YESS Officer/UBA)
- Kevin Reed (Stony Brook University)
- Nadine Shatilla (McMaster University)
- Jakub Walawender (YESS Regional Representative for Europe)



Workshop Objectives

- To have an in-depth discussion about **enhancing the generation of usable regional information** on different spatial and temporal scales, and the **utility of that information** by users, decision makers, and other stakeholders.
- The emphasis will be made on **how** weather, water, and climate extreme events change and how **new data sources and modeling approaches** can advance our understanding (and management).
- To evaluate what the **early career communities** have achieved in recent years, how they can **enhance their interaction**, and **foster collaborations** with other early career networks.

Agenda - day 1

- 07:30 – 08:45** *Breakfast in Foyer*
- 08:45 – 09:00** Arrival & registration of workshop participants
- 09:00 – 09:15** General opening of workshop
- 09:15 – 09:45** Short introductions of participants
- 09:45 – 10:15** Introduction to YESS and YHS
- 10:15 – 10:45** Introduction to WCRP/WMO, GEWEX mission, main project themes, and OSC context by **dr. Peter van Oevelen**, director of GEWEX International Project Office
- 10:45 – 11:15** *Coffee break*
- Prospective outcomes of workshop & plan/schedule
- Introduction to Working Groups on science discussion topics:
1. Exploring data sources - Usage of conventional and unconventional data, and new technologies to provide improved better weather, water, climate, land and biogeochemical data services
 2. Scale interaction & user needs - Management of and adaptation to weather, water, and climate extreme events
- 11:15 – 12:30**
- 12:30 – 13:30** *Lunch break*
- Impulse talk by **Prof. dr. John Pomeroy**, University of Saskatchewan, Canada
- 13:30 – 14:00** *"The role of integrating observation and prediction systems in generating data and learning from models - a hydrological and weather extremes perspective"*
- 14:00 – ~18:00** Field Excursion to Fortress Snow and Climate Observatory*.
Please note: Sturdy hiking boots and cold weather clothing are required, e.g. gloves, toque, insulated jacket
- 19:00 – 21:00** Social event at Canmore Brewing Company (optional)

Field Excursion

Today at 2pm we depart
from hotel lobby to visit the
**Fortress Snow and Climate
Observatory**.
John Pomeroy will join us!

YESS-YHS ECR Workshop Field Visit
**Fortress Snow and Climate
Observatory**




Photo: Angus Duncan

Located in scenic alpine scenery, the **Fortress Snow and Climate Observatory** is a state-of-the-art network of automated weather stations to investigate cold region mountain hydrology.

As part of the ECR workshop, visit the observatory with **Dr. John Pomeroy** to discuss the challenges and uncertainties associated with mountain hydrology and learn about ongoing projects.

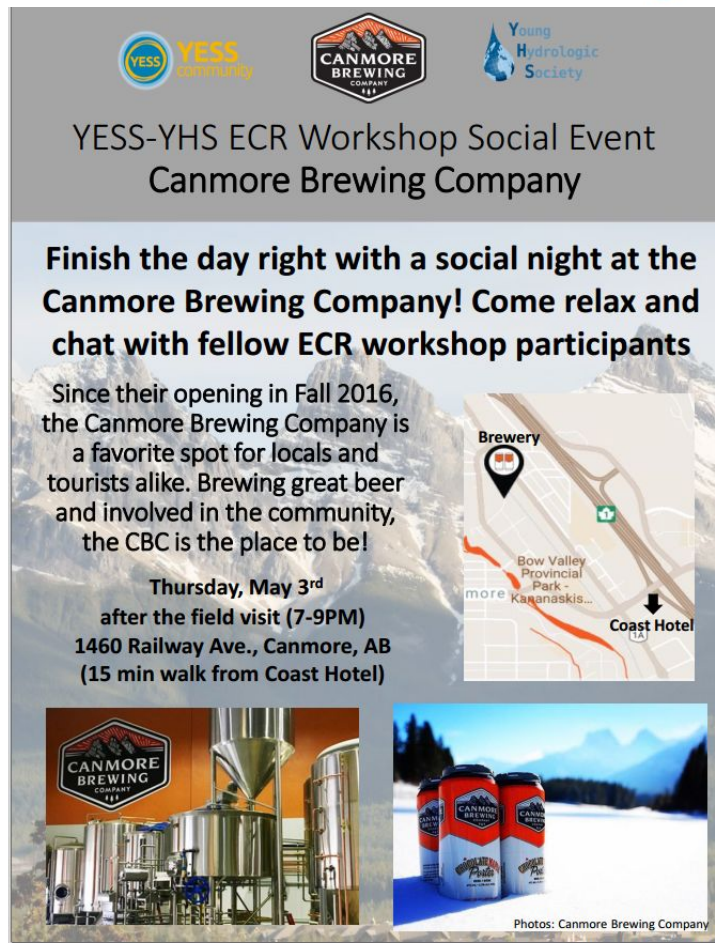
Thursday, May 3rd, 2-6 PM,
Transportation included in ECR workshop (departure from hotel lobby)
Bring sturdy hiking boots and cold weather clothing (gloves, tuque, jacket)






Photos: John Pomeroy

Social Event

Tonight we meet at Canmore
Brewing Company to relax and
break the ice. Scientists from the
GLASS (Global
Land/Atmosphere System Study)
panel might join us too





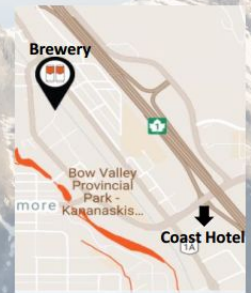
  

YESS-YHS ECR Workshop Social Event
Canmore Brewing Company

Finish the day right with a social night at the Canmore Brewing Company! Come relax and chat with fellow ECR workshop participants

Since their opening in Fall 2016, the Canmore Brewing Company is a favorite spot for locals and tourists alike. Brewing great beer and involved in the community, the CBC is the place to be!

Thursday, May 3rd
after the field visit (7-9PM)
1460 Railway Ave., Canmore, AB
(15 min walk from Coast Hotel)



Photos: Canmore Brewing Company

Agenda - day 2

Day 2 - Friday May 4

07:30 – 09:00 *Breakfast in Foyer*

09:00 – 09:15 Introduction to Day 2

09:15 – 09:45 Impulse talk by **dr. Graeme Stephens**, co-director of NASA JPL, USA
"Challenges in the science of weather, water and climate extremes"

Recap of Working Groups on science discussion topics:

- 09:45 – 10:00**
- 1.Exploring data sources
 - 2.Scale interaction & user needs

10:00 – 11:00 Working Group discussions in break-out groups

11:00 – 11:30 *Coffee break*

11:30 – 12:45 Working Group discussions (cont'd) in break-out groups

12:45 – 13:45 *Lunch break*

13:45 – 14:45 Working Group discussions (cont'd) in break-out groups

14:45 – 15:15 *Coffee break*

Plenary session on strengthening of ECR communities, including a discussions on e.g.:

- 15:15 – 16:00**
- Strengthening research profiles and collective ECR vision
 - Enhancing the involvement of ECR in the global community

Small break-out groups or WGs, possibly following YHS/YESS structures to facilitate

16:00 – 17:30 Smaller in-depth discussions and elevate on-going/planned activities in the ECR communities

17:30 – 18:00 Synthesis and closure

Agenda - day 3

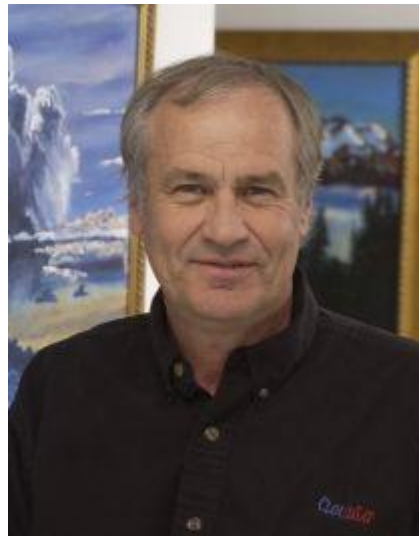
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|----------------------|--|
| 07:30 – 09:00 | <i>Breakfast in Foyer</i> |
| 09:00 – 09:15 | Wrap up of Day 2, Introduction to Day 3 |
| 09:15 – 10:15 | Working groups outcome presentations and consolidation of an integrated ECR perspective on main workshop topics |
| 10:15 – 11:15 | Discussion of strategy for white paper write-up and publication |
| 11:15 – 11:45 | <i>Coffee break</i> |
| 11:45 – 12:45 | Discussion on enhancing ECR participation in and further contribution to the GEWEX OSC. Developing key messages to convey at GEWEX OSC |
| 12:45 – 13:45 | <i>Lunch break</i> |
| 13:45 – 15:45 | Ways forward for further development of the ECR communities |
| 15:45 – 16:15 | <i>Coffee break</i> |
| 16:15 – 17:00 | Synthesis and closure of the ECR workshop |

Workshop dynamic

- 2 impulse talk from senior scientists



John Pomeroy
(USASK)



Graeme Stephens
(JPL-NASA)

Workshop dynamic

- Discussion around two topics:

Topic 1: **Exploring data sources** - Usage of conventional and unconventional data, and new technologies to provide improved better weather, water, climate, land and biogeochemical data services.

Topic 2: **Scale interaction & user needs** – Management of and adaptation to weather, water, and climate extreme events

Workshop dynamic

- Discussion in break-out groups (based on your answers to the form) moderated by the following co-chairs:
 - **WG1:** Nina Ridder, Erik Behrens, Dambaru Kattel and Romina Ruscica
 - **WG2:** Kevin Reed and Izidine Pinto
- Each WG will have Rapporteurs to take notes summarizing what is discussed → who else could volunteer?
 - **WG1:** Patricia Lawston and Imme Benedict
 - **WG2:** Silvia Innocenti

Workshop dynamic

WG1 - Exploring data sources

Members (based on survey)

- Nina Nadine Ridder
- Kristoffer Aalstad
- Christopher Beale
- Felicia Chiang
- Charlotte Love
- Kabir Rasouli
- Matilde Ungerovich
- Yeliz Yılmaz
- Erik Behrens
- Caroline Aubry-Wake
- Luana Albertani Pampuch
- Romina Ruscica
- Beth Woodhams
- Maria Mercedes Poggi
- Sara María Vallejo Bernal
- Bethel Ugochukwu Ukazu
- Mia Gross
- Dambaru Ballab Kattel
- Andre Bertoncini
- Patricia Lawston
- Cassiano Antonio Bortolozo
- Faten Attig Bahar
- Laurie Huning
- Furrukh Bashir
- Victor Indasi
- Imme Benedict

Workshop dynamic

WG2 - Scale interaction and user needs

Members (based on survey)

- Eveline van der Linden
- Silvia Innocenti
- Kevin Reed
- Izidine Pinto
- Juan Antonio Rivera
- Dean Walker
- Carla Gulizia
- Gaby Langendijk
- Shailendra Kumar Mandal
- Muelchi Regula
- Christina Aragon
- Marisol Osman
- Neil Hart
- Nabir Mamnun

Definitions

To facilitate the discussion around both topics, we would like to introduce some key concepts that might be helpful to bare in mind during the debate

- extreme events
- information vs. data
- user needs

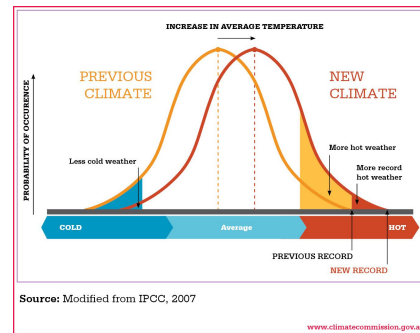


Definitions - Extreme event

Given a variable which is used to characterize any property of the Earth system at a given location, we define extreme as the occurrence of a value of that variable that is a **maximum (or a minimum)**, or it is above (or below) a **threshold value** near the upper (or lower) ends of the range of commonly observed or projected values of the variable.

(Source: Adapted from IPCC SREX and Stephenson et al. 2008)

This workshop focuses on weather, water and climate extremes. Typical examples could be: storm, flood, drought, heat/cold-wave etc.



Definitions - Data and Information

Data refers to a collection of raw, unevaluated facts, quantitative variables and numbers that are measured, collected, reported, etc

Information is data that have been put into a meaningful and useful context and is ready to be communicated to a recipient who uses it to make decisions.

(Source: Adapted from Davenport, T.; Prusak, L. (1998). Working knowledge: How organizations manage what they know . Boston: Harvard Business School Press)



Definitions - Users

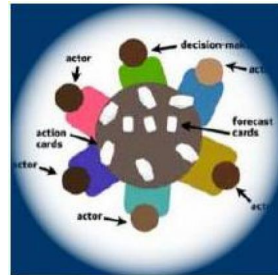
Users are a heterogeneous mix of stakeholders from international, national, sub-national and community levels which can derive a potential or actual benefit in using Earth system data and information.

Some recipients of information interpret, analyze and process it to produce a usable information for end-users, these are known as **intermediary users**. Intermediary users generally takes data and information to produce a product to **end-users** that end-users can put into the decision-making process.

Examples of typical intermediate-users of regional weather, water and climate data and information: Climate services, weather forecasts, scientists, consultancy firms, early warning systems, engineers,

Examples of typical end-users of regional weather, water and climate information: Planners, emergency managers, engineers, governmental officials (on all levels),

(Source: Adapted from WMO Bulletin Vol 62 (Special Issue) - 2013)



Plenary discussion on the future of ECR networks

Empowering early career scientists from underrepresented groups globally in weather, water and climate research:

- How the ECRs international communities (e.g. YESS, YHS) can help to include more actively the underrepresented groups?
- What are the gaps and opportunities between global South and North that ECRs could deal with & how could we stimulate the South-North cooperation?

Involvement in the global community:

- How YESS/YHS can strengthen links between WMO programmes (WWRP/WCRP/GAW) further in the future and engage with other organisations (e.g. ICSU, ISSC, IPCC, and Future Earth)?
- How we could consolidate a more active participation of ECR practitioners within the ECR international communities (YESS, YHS)?

Plenary discussion on the future of ECR networks

Raising the scientific profile of the ECR communities

- How to foster joint research collaborations and data sharing among ECRs?
- How to integrate the interdisciplinary expertise and geographical distribution of the ECR community members to empower their scientific profile (example: YESS Science WG?)

Engaging community members in the consolidation of the networks:

- What are the possible strategies to engage more members in the already consolidated networks (YESS, YHS)?
- How can we strengthen the ECR networks for the shared vision?

Main outcomes of the workshop

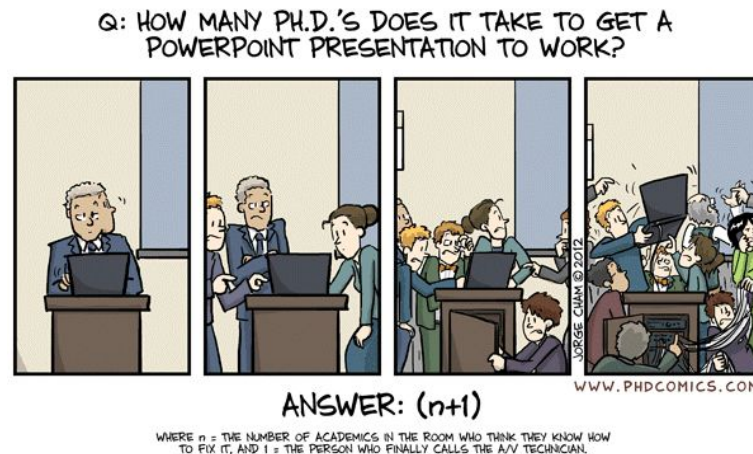
- Presentation on **key messages** coming from the workshop during **GEWEX OSC** (Friday morning plenary session, 11th of May)
- **Scientific/white paper** about workshop discussions to be published in a international scientific journal. This paper will be consolidated after the workshop including the outcomes from each WG.
- **Implementation strategies/a way forward** on ECR community

Presentation at GEWEX OSC 2018

Early Career Scientists plenary session on Friday morning from 9am to 10:15am

Outline:

- Presentation of YESS, YHS
- Presentation of workshop outcomes
 - WG 1 (10 min)
 - WG 2 (10 min)
- Current role and future of ECRs
- Best presentation award ceremony
- Synthesis



White paper vision

- Further discuss and explore the opportunities to advance our knowledge on regional information to improve our understanding on weather, water, and climate extreme events.
- Outline an ECR perspective on the current research, research needs and visionary ideas in a White Paper.
- The white paper is intended to be further modified based on the discussions during the Workshop and to be published in an international scientific journal afterwards.

White paper outline

Towards Regional Information to Improve Our Understanding on Weather, Water, and Climate Extreme Events - An Early Career Perspective

1. Introduction
2. Exploring data sources
3. Scale interactions and user needs
4. Strengthening the international ECR community
5. Conclusion

White paper development

- **During the workshop:** Consolidation of key messages based on the outcomes of each WG discussion
- **After the workshop:**
 - Development of first draft by authors (from the survey and new volunteers from workshop) based on key messages
 - Circulation to receive comments and improvements from contributors
 - Consolidation of comments
 - Final circulation
 - Final revision and submission



WRITING: THE THING THAT HAPPENS IN BETWEEN EXHAUSTING
YOUR DEADLINE AND EXHAUSTING YOURSELF.

Final message

As most of the activities developed by YESS and YHS, this workshop is intended to be a space for the interaction and the involvement of ECR to consolidate a vision and make our voice heard. We hope we have a rich and respectful dialogue.

This meeting is not a conference nor a class. It is a workshop and we would like to see you actively participating in all the discussions.

It was entirely developed by and for all of us. Your input is crucial to the discussions and the success of the workshop. Let's take this opportunity to consolidate our role in the international community.

WG 1 Intro - Erik Behrens

WG 2 Intro - Izidine Pinto

Discussion - Questions



JORGE CHAM © 2004

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Practical information

- Breakfast and lunch will be served at the concourse (7.30-9am). Members of GLASS panel will have breakfast and lunch with us too.
- WIFI: Username Coast - Pass: coastguest
- Quotes for YESS newsletter and Workshop Movie
- Workshop picture (before coffee break day 1 and day 3)
- ECR 2018 Workshop in social networks: We are using the [#GEWEX2018EarlyCareer](#) to share the experience and pictures with our community and contacts. Follow us and spread the event within your contacts too (@YESSCommunity @YoungHydrology)

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YESS community Young Hydrologic Society







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