

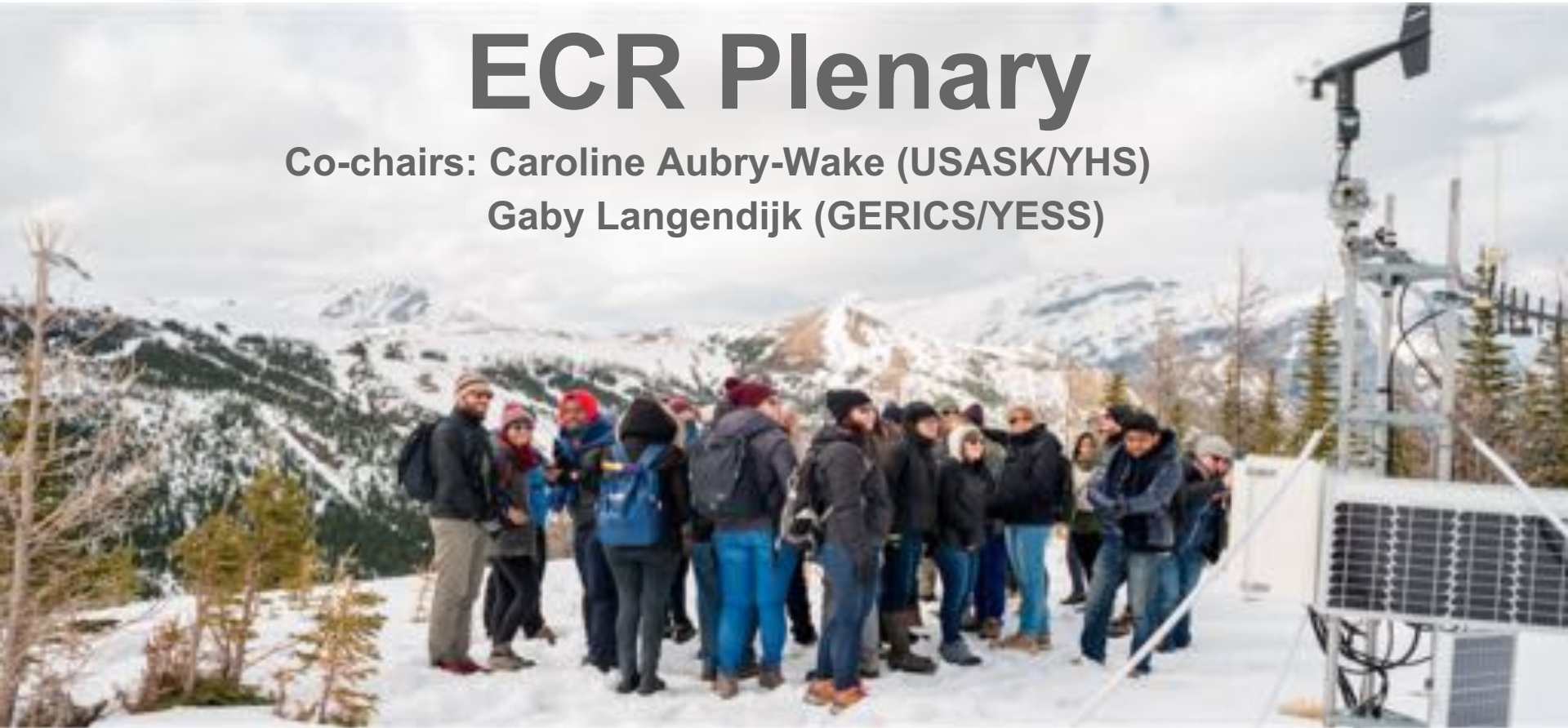


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community



# ECR Plenary

**Co-chairs: Caroline Aubry-Wake (USASK/YHS)  
Gaby Langendijk (GERICS/YESS)**



**11 May 2018**

**GEWEX OSC, Canmore, Canada**



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# Outline



Introduction to YHS & YESS networks



YESS-YHS ECR workshop outcomes



ECRs & GEWEX outlook



Best presentation award ceremony



**Young  
Hydrologic  
Society**

# About



- A bottom-up initiative to stimulate the interaction and active participation of *young hydrologists* within the hydrological scientific community.

# Objectives



- **Facilitate** connections among ECRs hydrologists
- **Organize** events to enhance professional development
- **Make** the scientific community more accessible
- **Stimulate** ECR leadership at relevant organizations

# Active network



## AGU committee

### AGU H<sub>3</sub>S committee

Evan Kipnis (Chair) (University of Utah)  
Niels Claes (Co-Chair) (University of Wyoming)  
Sheila Saia (Cornell University)  
Natasha Krell (Princeton University)  
Kevin Roche (Northwestern University)  
Adam Wlostowski (University of Colorado at Boulder)  
Harsh Beria (Indian Institute of Technology at Kharagpur)  
Vanessa Garayburu Caruso (University of New Mexico)  
Allison Goodwell (University of Illinois at Urbana-Champaign)  
Chelsea Morris (Cornell University)  
Emily Voytek (Colorado School of Mines)

## Board members

### Board (2016-2017)

Chair: Nilay Dogulu (Middle East Technical University, Ankara)  
Co-chair: Wouter Berghuijs (ETH Zürich)  
Secretary: Harsh Beria (University of Lausanne)  
Member: Andrea Popp (Eawag)

### Board (2015-2016)

Chair: Wouter Berghuijs (University of Bristol)  
Co-chair: Tim van Emmerik (Delft University of Technology)  
Secretary: Nilay Dogulu (Middle East Technical University, Ankara)

### Website

Maarten Smoorenburg (Deltares)  
Shaun Harrigan (Centre for Ecology & Hydrology)  
Marius Floriancic (ETH Zürich)

### Streams of Thought, Hallway Conversations, Research “Hylights”

Nilay Dogulu (Middle East Technical University, Ankara)  
Kevin Roche (Northwestern University)  
Wouter Berghuijs (ETH Zürich)  
Tim van Emmerik (Delft University of Technology)  
Adam Wlostowski (University of Colorado)  
Maarten Smoorenburg (Deltares)

## Canadian YHS

Nadine Shatilla (McMaster University)  
Kelly Biagi (McMaster University)  
Lauren Somers (McGill University)  
Caroline Aubry-Wake (U. Saskatchewan)  
Pierrick Lamontagne-Gagné (McGill University)  
Sophie Wilkinson (Waterloo)  
Cody Ross

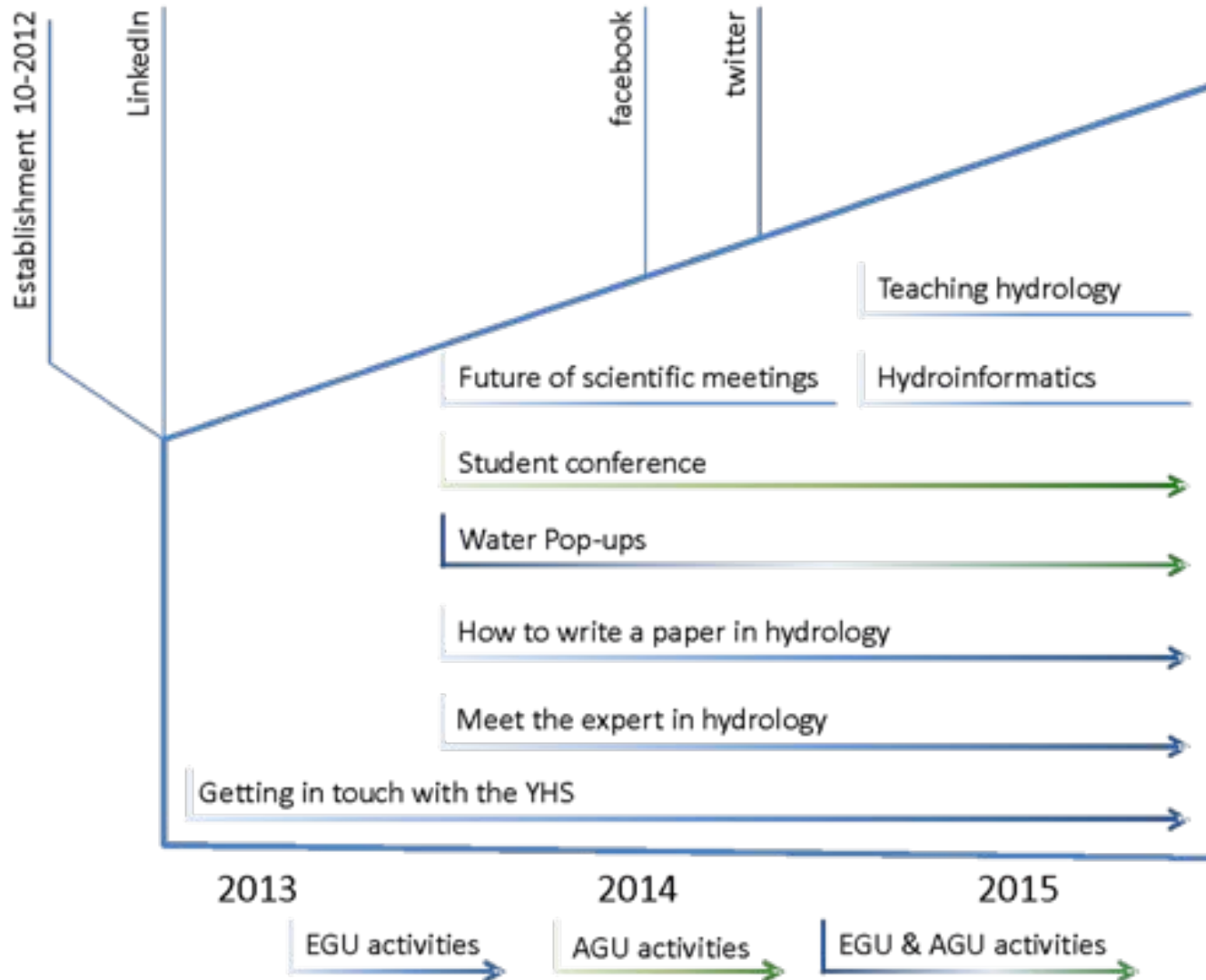
## EGU committee

Hannes Müller (Leibniz Universität Hannover)  
Ina Pohle (Brandenburgische Technische Universität Cottbus)  
Maarten Smoorenburg (Deltares)  
Shaun Harrigan (Centre for Ecology & Hydrology)  
Marius Floriancic (ETH Zürich)  
Wouter Berghuijs (University of Bristol)  
Tim van Emmerik (Delft University of Technology)  
Nilay Dogulu (Middle East Technical University, Ankara)  
Claudia Teutschbein (Uppsala University)  
Lieke Melsen (Wageningen University)  
Wouter Knoben (University of Bristol)  
David Wright (University of Adalaide)

## Country Representatives

Austria – Daniel Klotz  
Bangladesh – Shahadat Hossain  
Ethiopia – Fasil Teshome Worku  
Germany – Hannes Müller, Ina Pohle  
Greece – Nikolaos Vavlas  
Ireland – Shaun Harrigan  
Jordan – Mohammad Alqadi  
Kenia – Ruth Katui Nguma  
Nigeria – Isaac Adedeji, Bethel Ukazu Ugochukwu  
Norway – Jonathan Rizzi  
Pakistan – Shabeh ul Hasson  
Russia – Georgy Ayzel  
Senegal – Ansoumana Bodian  
Serbia – Nikola Zlatanovic  
South Africa – Coli Ndzabandzaba  
Sudan – Modathir Zaroug  
Sweden – Claudia Teutschbein  
Switzerland – Andrea Popp, Marius Floriancic  
Turkey – Nilay Dogulu

# History



# Connecting Experts and ECRs



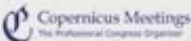
European Geosciences Union  
General Assembly 2017

Vienna | Austria | 23-28 April 2017

EGU.eu



- Home
- Information
- Programme
- Uploaded presentations
- Webstreaming
- Guidelines
- EGU Today
- Registration
- Exhibition
- Geospots Vienna
- Press & media
- Imprint



Find the EGU on



## SC19/HS12.1 ECS

### Meet the Expert in Hydrology: Is research at different spatial scales connected? (co-organized)

Conveners: Wouter Knoben G., Wouter Berghuijs

Fri, 28 Apr, 08:30-10:00 / Room -2.91

★ Add this session to your [Personal program](#)

Hydrological research takes place across extremely detailed hydrological processes of hillslopes: descriptions to simulate streamflow, while global

In theory, research at these different spatial scales: understanding and models, which leads to in across different spatial scales may be more diverse heterogeneities across diverse landscapes, at between scales.

This session brings together experts who work role of experimental findings at the field/catchment model/theory development), and Prof. Reed experiences on bridging the connections between them and their views on future developments.

The expert will start their presentations at 8:30.



Wouter Berghuijs

@wberghuijs

Great "meet the expert" session on synergy across scales #EGU17 #hydrology @YoungHydrology @reedh2o



10:01 AM - 28 Apr 2017

Stimulate thinking about the "bigger picture"

## Meet the Expert in Hydrology: Is research at different spatial scales connected?

Posted on [May 3, 2017](#) by [Young Hydrologic Society](#)

*A –Streams of Thought– contribution by Wouter Knoben, Shaun Harrigan, David Wright, Wouter Berghuijs*

**Scaling** (i.e. the transfer of knowledge across scales) and **scale issues** (i.e. the associated problems) are at the heart of most hydrologic puzzles. In the most recent **"Meet the Expert in Hydrology"** session, organized at the EGU General Assembly 2017 in Vienna, YHS invited three speakers to identify to what degree their research is connected, influenced by, and influencing research at other spatial scales. By evaluating the current state of research and discussing future directions we tried to shed some new light on the question **"Is hydrological research at different spatial scales connected?"**. This is what we learned...

Hydrological research takes place across extremely different spatial scales (from pore-scale to global). Experimentalists have an understanding of detailed hydrological processes of hillslopes and headwater catchments, model developers generate larger-scale

# Scientific sessions with a twist



## HS1.11 Learning from hypotheses and failures in hydrology PICO session

Conveners: Hannes Müller Q, Inge Wiekenkamp Q  
Co-Conveners: Anne Fangmann Q, Georg Houben Q, Ina Pohle Q, Michael Stockinger Q, Lena M. Tallaksen Q, Tim van Emmerik Q, Seth Westra Q

▣ [PICO](#) / **Mon, 24 Apr, 15:30–17:00** / PICO spot A

## HS1.10 How my water research made the news PICO session

Conveners: Stefanie Lutz Q  
Co-Conveners: Andrea Popp Q, Tim van Emmerik Q, Manuel Felipe Rios Gaona Q

▣ [PICO](#) / **Wed, 26 Apr, 13:30–15:00**

## HS1.6 Water Sciences Pop-Ups PICO Session

Conveners: Tim van Emmerik Q  
Co-Conveners: Shaun Harrigan Q  
▣ [PICO](#) / **Mon, 13 Apr, 10:30–11:08** / PICO spot A

This session is co-organized by the Young Hydrologic Society. In cooperation with the Young Hydrologic Society, this session provides (early career) scientists a PICO poster discussion, on their future vision for communicating with the general public. Presentation topics include the future of publishing, education, and notable examples from previous editions of the session. We specifically encourage students and early career stage, with the goal of having a diverse group of speakers.

The aim of this session is to provide the chance to share research. The session is driven by examples of hydrological research topics in hydrology and geosciences. The invited speakers will (1) highlight communicating scientific results, (2) illustrate how to communicate research topics in hydrology and geosciences, (3) discuss the future of publishing, education, and (4) provide notable examples from previous editions of the session.

We are happy to attend this session. In cooperation with the Young Hydrologic Society, this session provides (early career) scientists a PICO poster discussion, on their future vision for communicating with the general public. Presentation topics include the future of publishing, education, and notable examples from previous editions of the session. We specifically encourage students and early career stage, with the goal of having a diverse group of speakers.

**Public information:** This session is scheduled as PICO standard PICO sessions. The oral presentations will be slides, posters, videos, and other media.

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@YoungHydrology

Following

Great turnout at the hypothesis PICO #EGU17





# Short courses and workshops



## Quick recap on EGU 2017 Short course on Hydrological Forecasting

Posted on [July 14, 2017](#) by [shaunharrigan](#)

For the first time at this year's EGU 2017, HEPFX and the YHS jointly organised a Short course on Hydrological forecasting and

- Estimating p
- Reducing pr
- Forecast ver
- Risk-based c

## Hydroinformatics for hydrology: geostatistical modelling

Posted on [July 3, 2017](#) by [Young Hydrologic Society](#)

This year's focus for "[Hydroinformatics for hydrology](#)" short course at EGU GA 2017 was *geostatistics*. Being introduced to the fundamentals of geostatistics, the participants (> 60, the room was geostatistical metho András Bárdossy (U University of Crete); You can find the lect

## Opinion papers in hydrology: Why and how? (short course) at EGU 2017

Posted on [May 3, 2017](#) by [Ivanammerik](#)

[An Introduction to Geostatistics in R](#) (by post later this month



by [Anna Solcerova \(Delft](#)

Young (and mature) scien on a short course titled "C Vazken Andréassian, and topic. Participants of this as well as personal advice quantifiable message, whi controversial. Vazken disc readability. Two things all papers, and that good opi

Find their presentatio

[Bettina Schaepli](#) – [Opinion](#)  
[Hubert Savenije](#) – [Opinio](#)  
[Vazken Andréassian](#) – [Op](#)

Posted in [EGU News](#), [Res](#)

The Canadian Young Hydrologic Society Presents:  
**Careers in Hydrology:  
Options and Insights**  
1:30-4 pm on Sunday, June 10th, 2018

Graduate and undergraduate students, post-docs and early career hydrologists: Start the 2018 CGU Annual Meeting off by attending the **CYHS workshop and social night!**

featuring guest speakers:

racuse University - Launching new research projects  
vironment Canada - A perspective from a government hydrologist  
y of Northern British Columbia - Working abroad as a scientist, working with NGOs  
MBA, P.Geo, Amec Foster Wheeler - Working as a hydrologist in industry

With social event to follow!

**Cost: \$10, Venue TBA**  
**online when registering for the CGU Conference in Niagara Falls**

oil.com



## Using R in Hydrology (short course) at EGU 2017

Posted on [May 2, 2017](#) by [shaunharrigan](#)

"Using R in hydrology" short course at EGU 2017 was a great success, attracting over 100 participants (in a room with 80 seats, see photo!). We covered a wide range of hydrologically focused applications of the R programming language: reproducible documents with **rmarkdown**, **Using R as a GIS**, **Hydrological modelling with airGR**, as well as **Visualisation**, **Extreme value statistics** and **Trend analysis** of discharge time-series. The slides with all the code and example datasets are available [here](#).



Booked room for 'Using R in Hydrology' short course at EGU 2017

[Continue reading](#)

Posted in [EGU News](#)

# Informal activities



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@YoungHydrology

Following

Hydrodrinks was very well attended again this year! #egu17 #hydrology



11:38 PM - 26 Apr 2017

3 Retweets 12 Likes



Retweet 3

Like 12



# Online activities



## Main content

- Updates
- Info about YHS
- Past resources
- Blog posts

### Quick recap on EGU 2017 Short course on Hydrological Forecasting

Posted on [July 14, 2017](#) by [shaunharrigan](#)

For the first time at this year's EGU 2017, [HEPEX](#) and the YHS jointly organized a [course on Hydrological Forecasting](#). The course was focused on real-time hydrological forecasting and topics covered included:

- Estimating predictive uncertainty (e.g. ensembles & post-processing)
- Reducing predictive uncertainty (e.g. data assimilation)
- Forecast verification (graphical & numeric approaches)
- Risk-based decision making game for operational water management – it



# Social media presence



- **LinkedIn Group**

385  
Members



- **Facebook Group**

1.6 k  
Members



- **Twitter Page**

1870  
Followers

@YHS  
@CanadianYHS



- **Youtube Channel**

34  
Subscribers

37 Videos  
2277 VViews

# In Summary



- **Idea:** YHS is a catalyst for involvement of early career hydrologists within the scientific community (which already led to big changes within e.g. EGU, AGU, IAHS, CGU)
- **Current status:** YHS runs a sweep of online and offline activities annually reaching ~1500 people offline and ~7500 online.
- **Future:** remain focused on shaping ECS involvement in the scientific community, but focus on better global coverage.

EDUCATION Opinion



## Creating Community for Early-Career Geoscientists

Student involvement in geoscience unions: A case study from hydrology

By Wouter R. Berghuijs, Shaun Harrigan, Evan L. Kipnis, Nilay Dogulu, Marius Floriancic, Hannes Müller, Ina Pohle, Sheila M. Sala, Frank Sedlar, Maarten Smoorenburg, Claudia Teutschbein, and Tim van Emmerik © 16 December 2015

The American Geophysical Union (AGU) and the European Geosciences Union (EGU) play central roles in nurturing the next generation of geoscientists. Students and young scientists make up about one quarter of the unions' active memberships [*American Geophysical Union*, 2013;



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**YESS is a Unified International Multidisciplinary  
Early Career Researchers Network**



*As young scientists, we have a critical role in shaping the future of Earth system science. We lead new endeavors in the frontiers of science, seamlessly integrating international research across multiple disciplines. Within the YESS community, we seek to pioneer crucial areas of research which provide solutions to benefit society.*







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**YESS**

Provides an **international platform** for interdisciplinary early career researchers in Earth system science.

**YESS**

**Organizes activities:** at large conferences, online, as well as dedicated ECS workshops. Providing excellent opportunities to network, learn new skills, share research and consolidate ECS perspectives on Earth system science.

**YESS**

**Partners with international organisations** to inject young scientists' voice.

**YESS**

**Creates opportunities** for early career researchers to become active in scientific related activities in the global science community.

**YESS**

Reduces carbon footprint and enables interaction across regions and cultures through **a fully online network.**





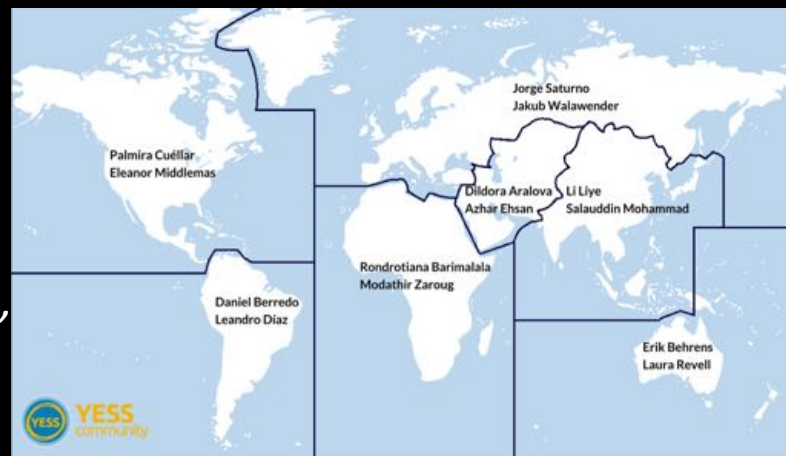
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# Structure

Executive Committee 2018/2019



Regional Representatives  
2018/2019



*YESS is focussed on (but not limited to) PhD students, Post-Docs, Master students and early career researchers 5 yrs after their latest degree*



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# History





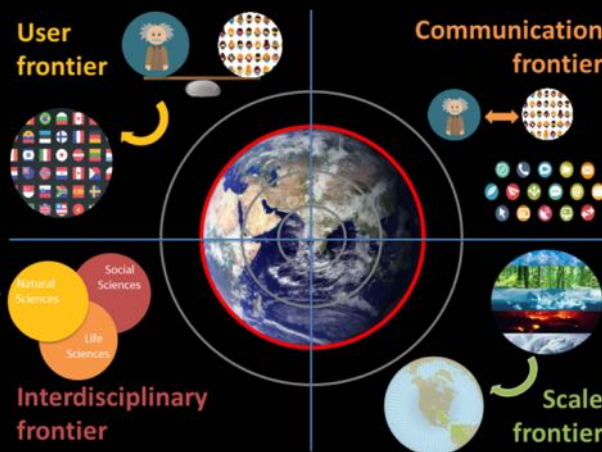
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# ECR Perspectives



## Earth System Science Frontiers: An Early Career Perspective

Rausser, F., Baker, N.,  
Bedard, J., Behrens, E., Dogulu, N.,  
Frassoni, A.,  
Keller, J., Osman, M., Langendijk,  
G., Reed, K.,  
and Kirkpatrick, S., 2017. Bulletin  
of the American Meteorological  
Society, 98(6), pp.1120-1127.



## Africa's young climate scientists face challenges

Dike V.N, Addi M, Andangó H.A, Attig  
B.F, Barimalala R, Diasso U.J, Du Plessis  
M, Lamine S, Mongwe N.P, Mah Z,  
Ochanda K.V, (2018)  
Nature Climate Change  
(accepted for publication)

## Towards a more integrated role for early career researchers in the IPCC process

ECR-IPCC research project, an outcome of  
Future Earth-PROVIA-IPCC Workshop



## Reflections on the CLIVAR Early Career Scientists Symposium 2016

Swart, N. C., J. Busecke, G. Langendijk, K. A. Reed, S. M. Kang,  
E. Behrens, A. Frassoni, N. C. Baker, J. V. Durgadoo, V. N. Dike  
& D. Nath (2018), npj Climate and Atmospheric Science, 1, 6.

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**How to get more ECRs to play a role in the IPCC  
process? – A survey**  
Posted by Galzy Langendijk | 1 2017/05/02

Always wanted to be part of the IPCC process? – Answer this survey!

If you are an early career scientist (students and researchers up to 5 years after their latest degree) let your voice be heard to get more young researchers involved in the Intergovernmental Panel on Climate Change (IPCC) in the future. This survey aims to gain improved understanding on how early career scientists (ECS) can play a role in the IPCC.



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# International community



WCRP JSC-39 meeting



High-level panel at 30th Celebration of IPCC



WMO Bulletin: Present and future leaders in weather, water and climate



COP23



Future Earth KAN Emergent Risks and Extreme Events Scoping Workshop



CLIVAR ECSS, Qindao, 2016





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“We believe that we can shape a truly international and sustainable research network that will compliment and integrate ongoing activities in the short term and will benefit the international research community in the long term by training and creating opportunities for future leaders.”

– *YESS Community* –

If you are interested in ***joining our network, sign up at the website:***  
[www.yess-community.org](http://www.yess-community.org) or ***e-mail us:*** [contact@yess-community.org](mailto:contact@yess-community.org)



yesscommunity0



YESSCommunity



yess-community



# Joint YES-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

**Invited speakers:**  
**John Pomeroy (USASK)**  
**Graeme Stephens (NASA JPL)**  
**Peter van Oevelen (GEWEX IPO)**

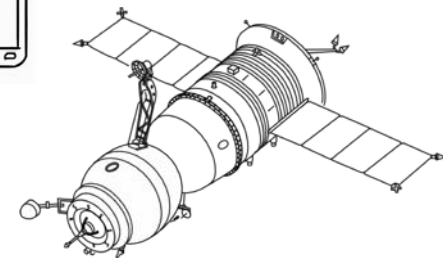




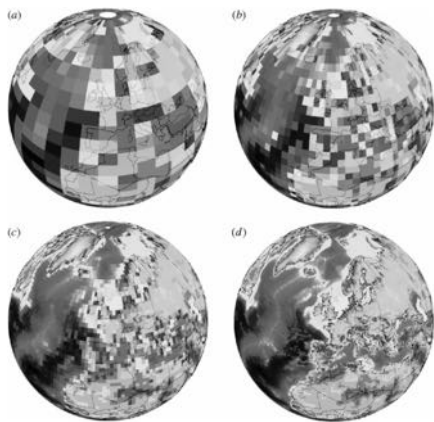
## YESS-YHS ECR Workshop Organising Committee

- **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)





# Data sources



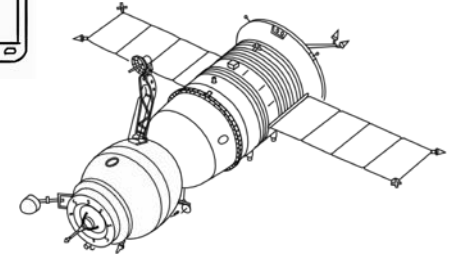
# Scale-interactions

# User needs



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# Data sources

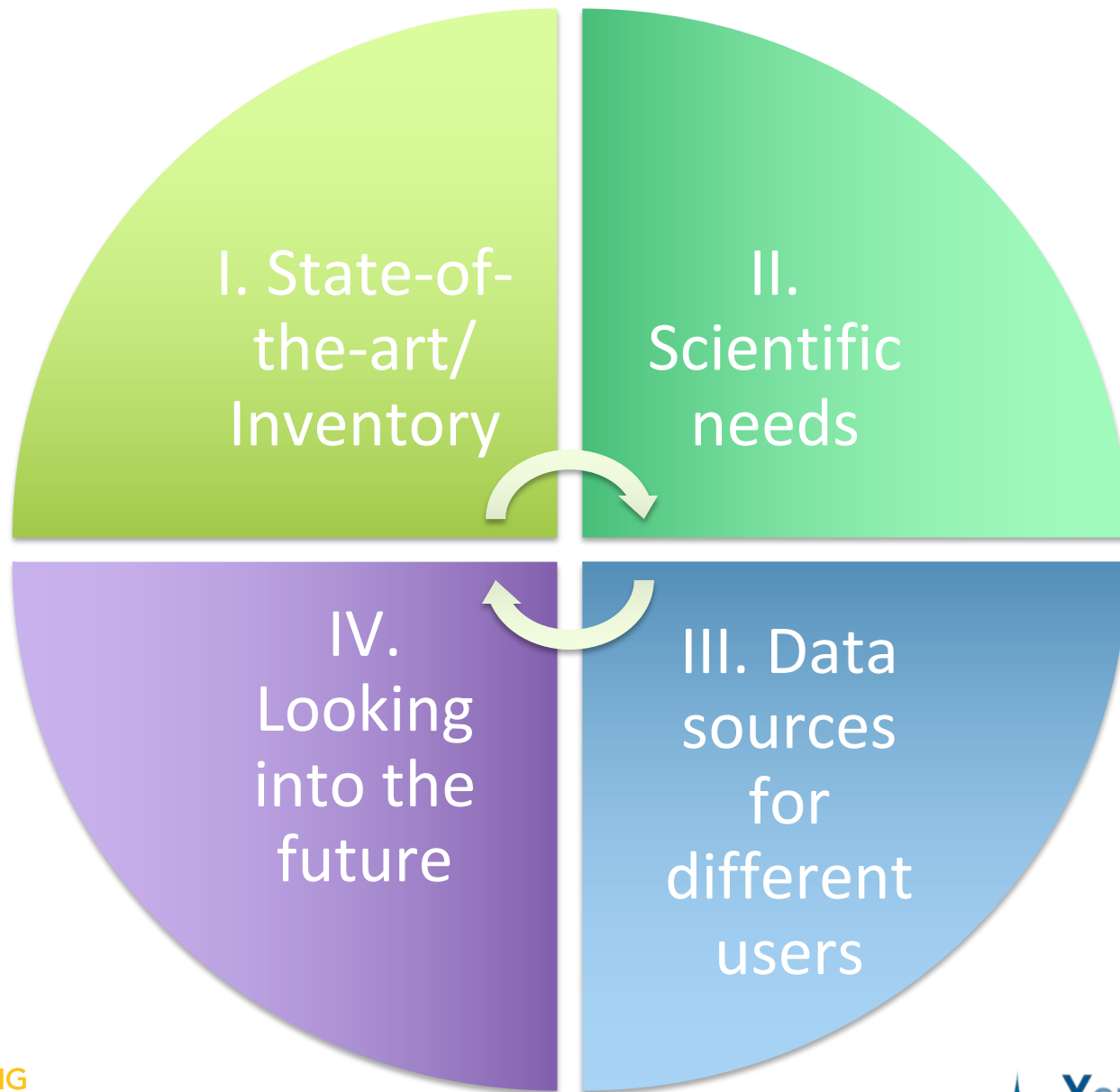
## Objective

Exploring data sources;  
usage of **conventional** and **unconventional** data and  
**new data technologies** to improve weather, water, and  
climate data services



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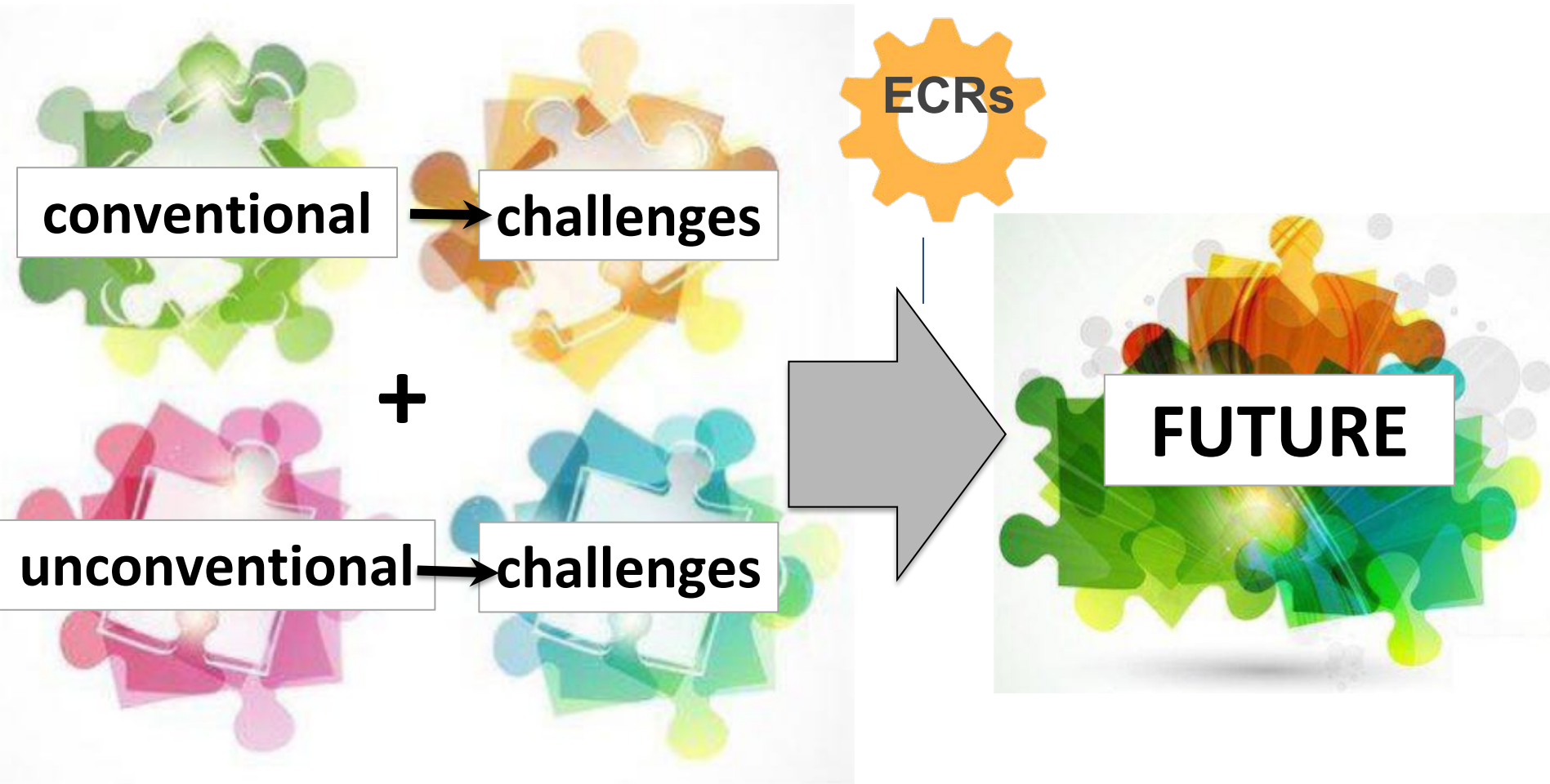




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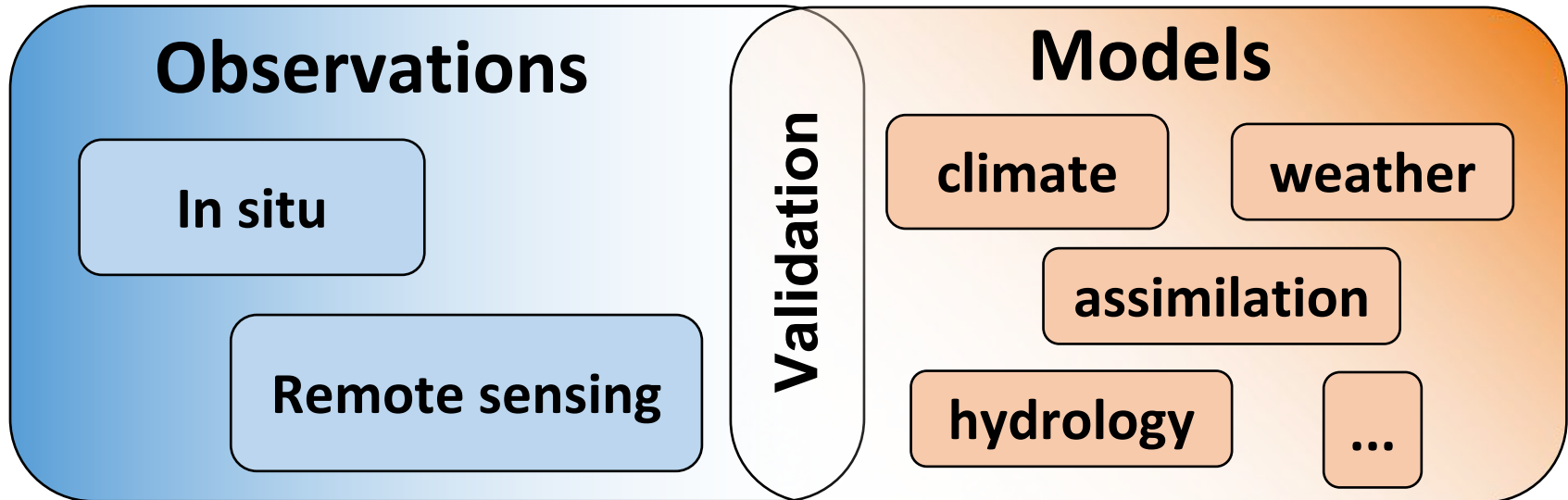
# Data sources



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# Conventional data sources



## Ongoing challenges:

- Open access / free of charge
- Coverage limitations (e.g. mountainous, sparsely populated, developing regions, high latitudes)
- Data quality; measurement details, metadata, technical details, uncertainties, lost or imprecise



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# Unconventional data sources

## Instrumentation

Raspberry pi,  
etc

UAV

Cube Sat

## Citizen science

Apps

Distr.  
computing

Crowdsourcing

## Challenges:

- Quality control/benchmarking/standardization – What are the opportunities, uncertainties and limitations we need to take into account?
- How can we ensure (continuous) participation of society?



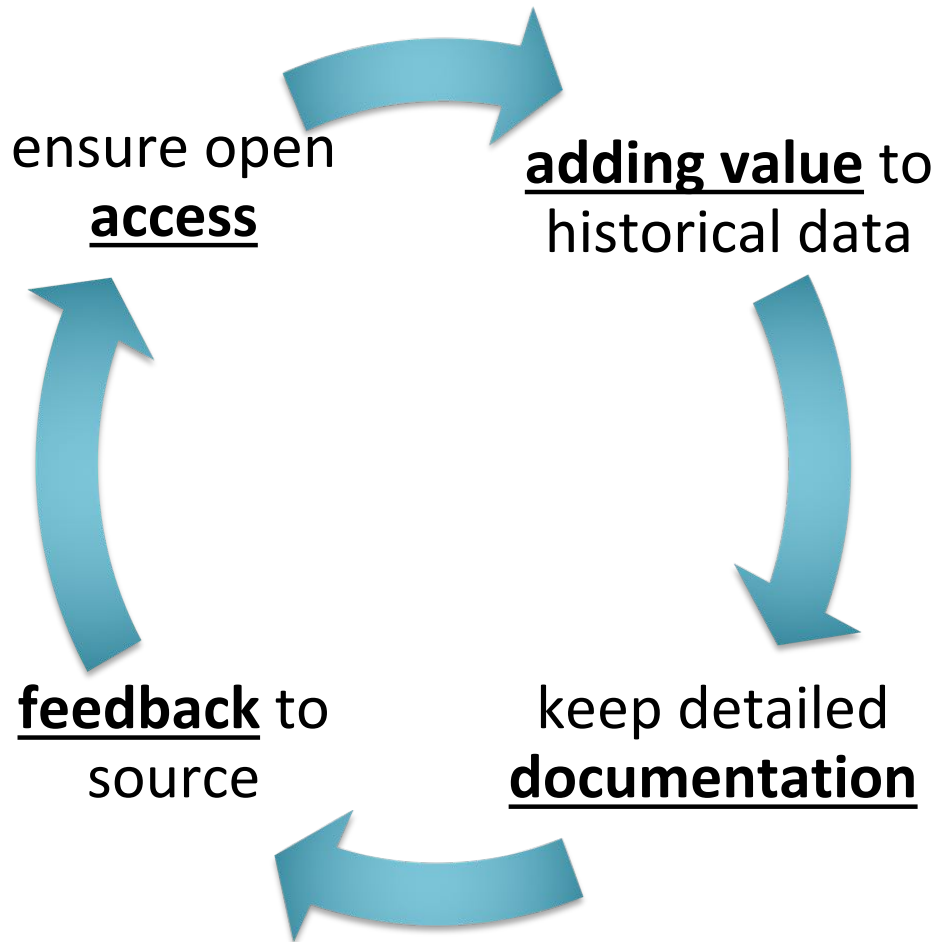
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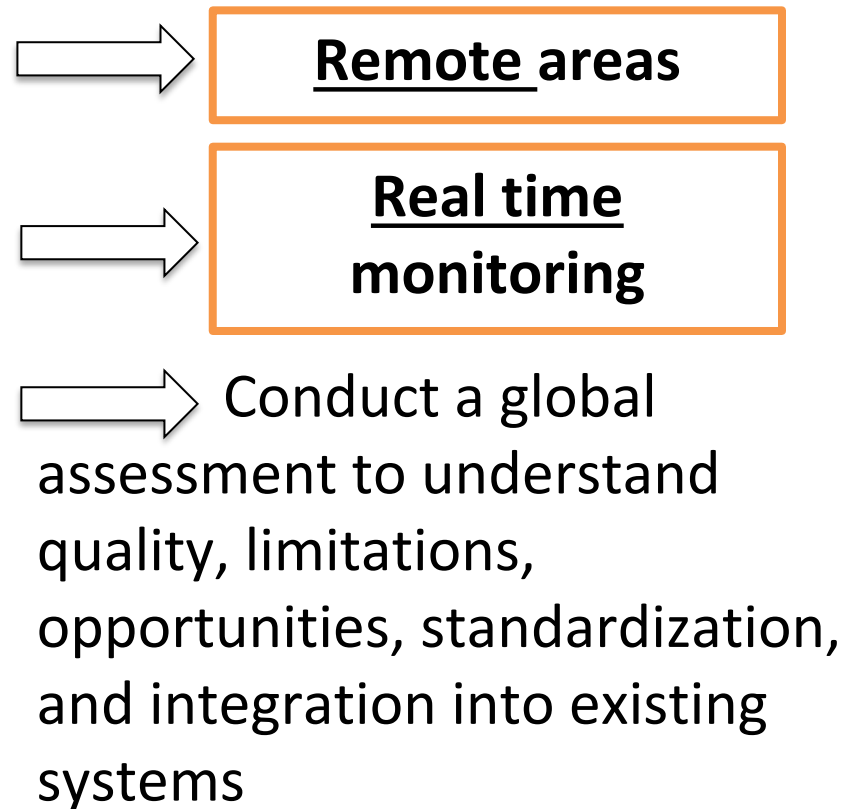
# ECR perspective into the future

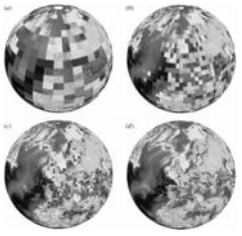
## conventional



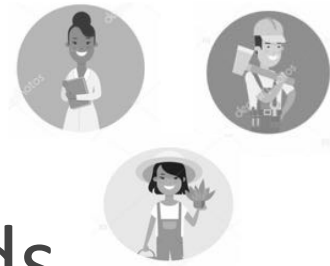
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## unconventional

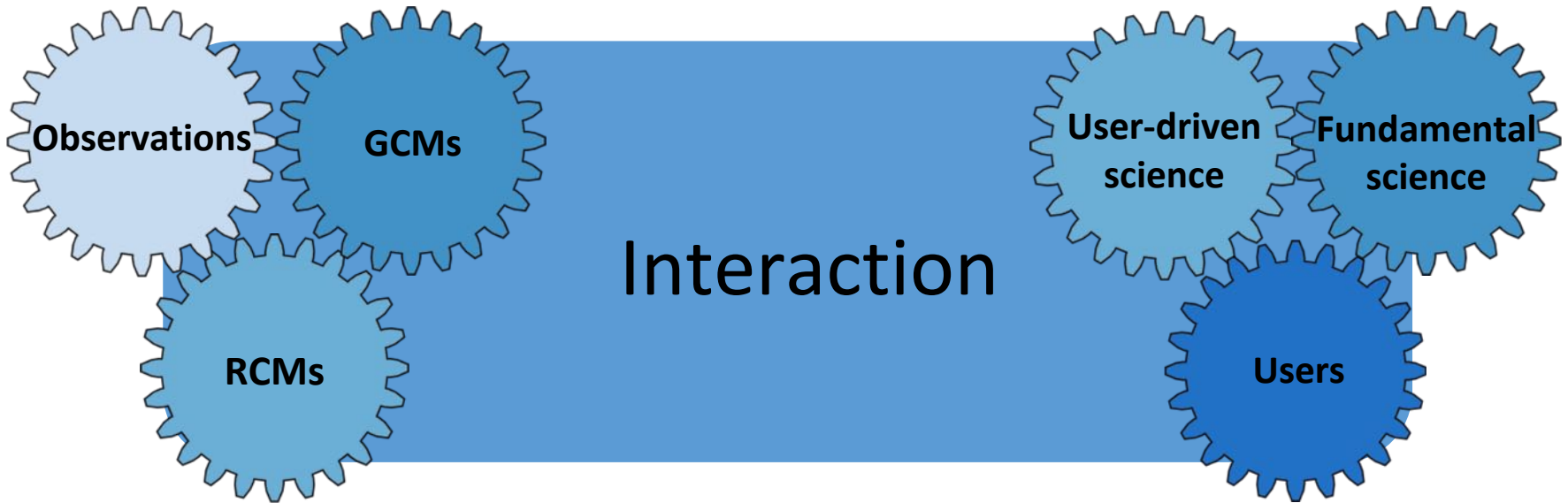




# Scale-interactions



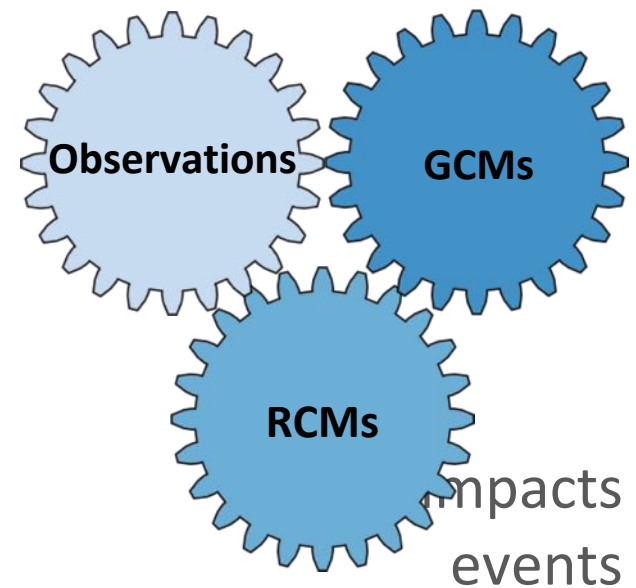
# User needs



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# Scale-interactions



## Challenges:

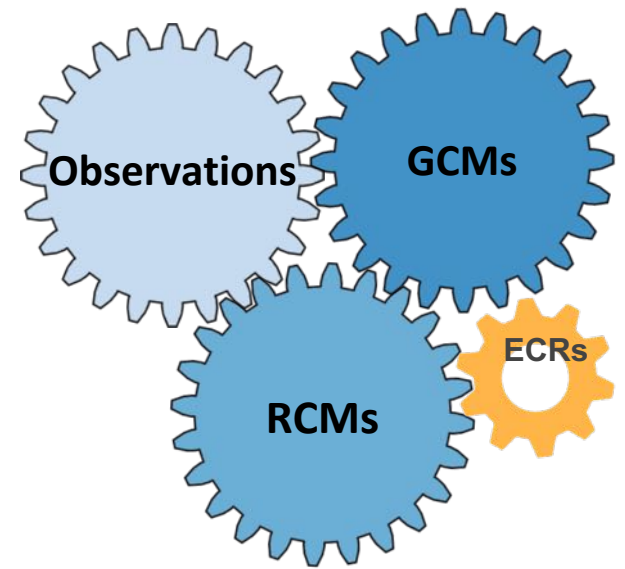
- Understanding regional & extreme impacts events
- GCMs → RCMs → Convection Permitting Models/hydrological models/NWP...
- Increasing amount of models and divergence across them
- Diversity of methodological approaches across modeling scales



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# ECR Perspective into the future



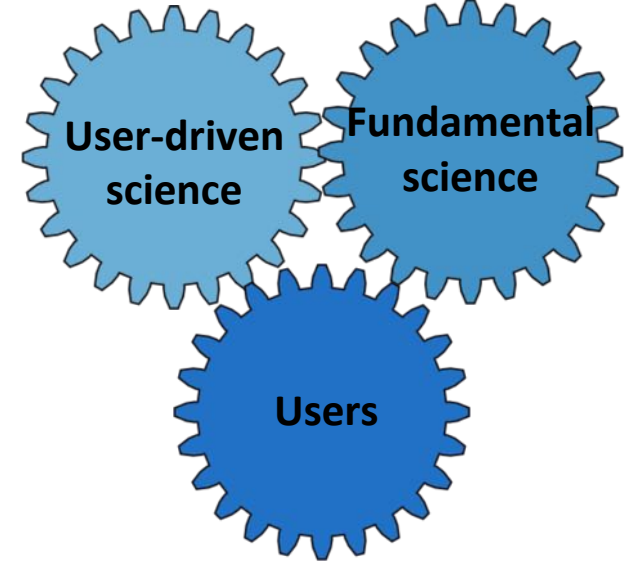
- Enhance collaboration and sharing of expertise between the modelling communities to improve process understanding across scales
- Strengthen the interactions between the observation and modelling communities
- Methodological approach to model evaluation, e.g. through a process-based approach



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# User needs



## Challenges

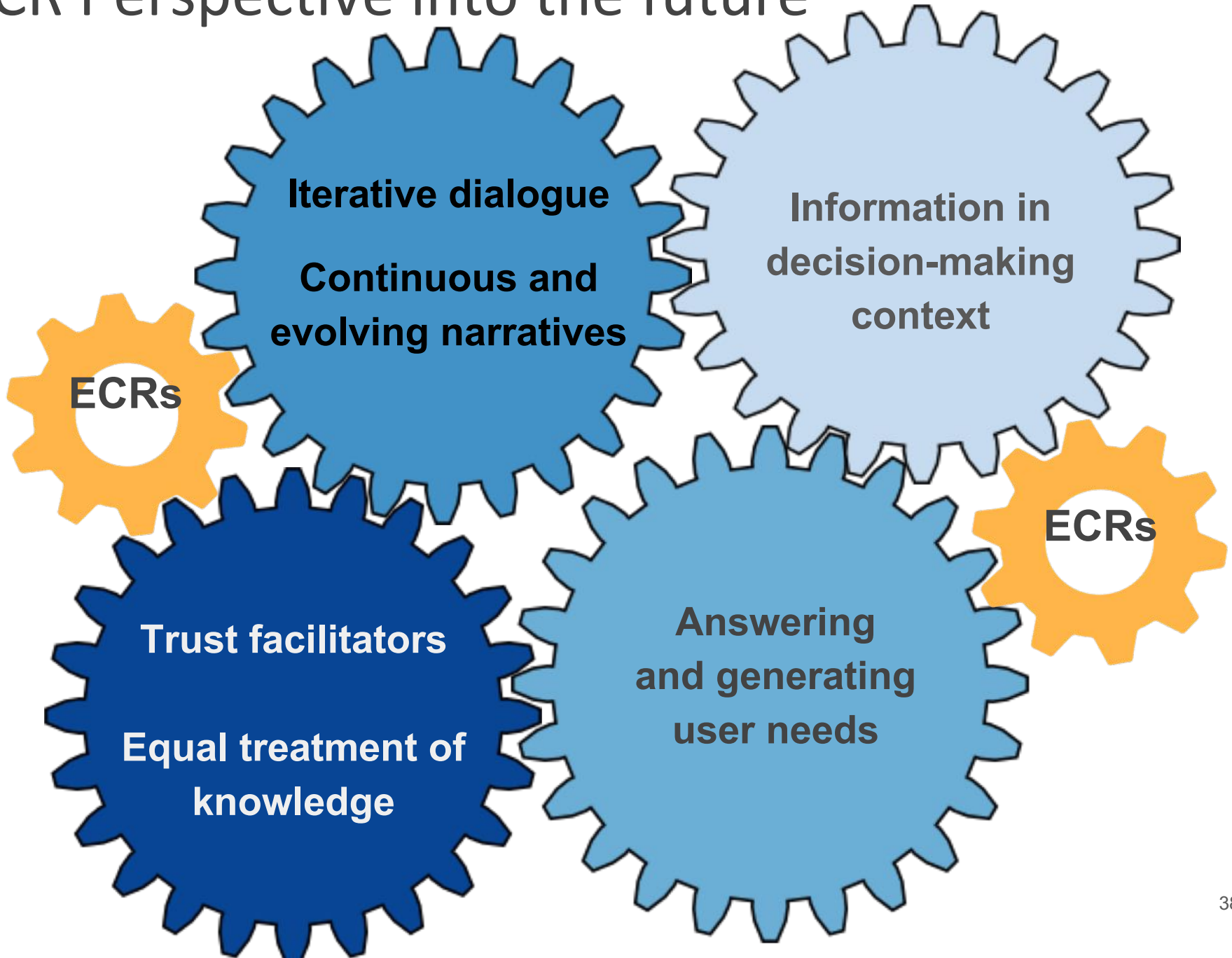
- Limited understanding between scientists and users
- Balancing fundamental and user-driven science
- Trust building



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# ECR Perspective into the future

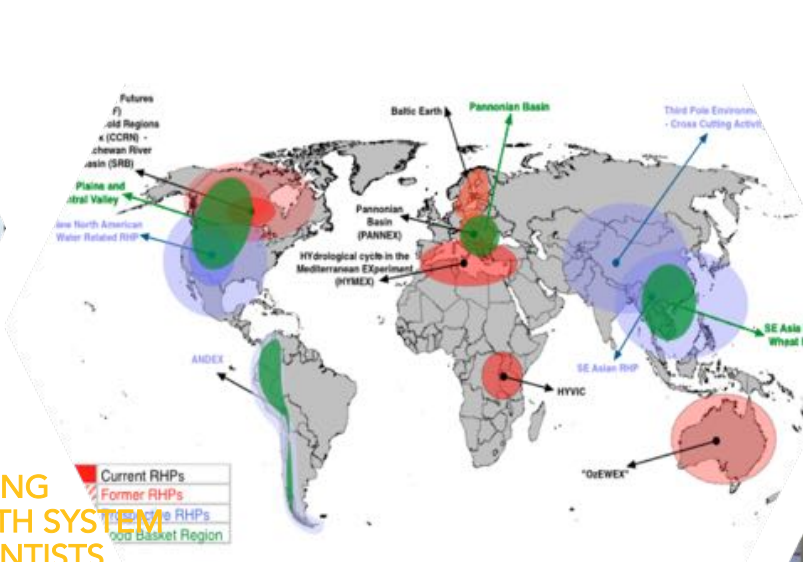
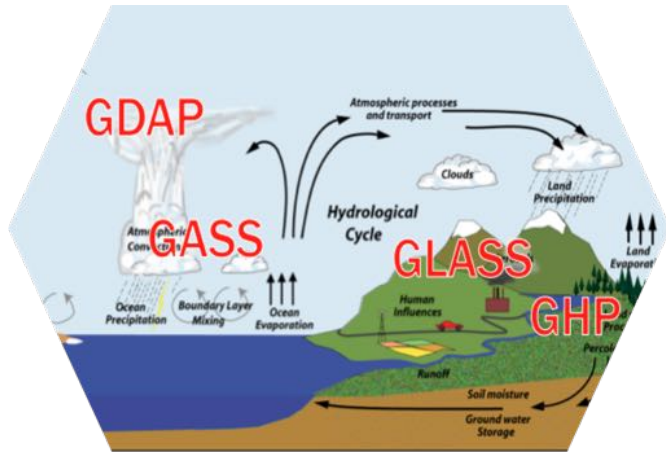




Data sources

Scale-interactions

User needs



INTERACTION  
 DATA GAPS  
 REGIONAL INFO  
 SCALE-INTERACT  
 USER NEEDS  
 CO-PRODUCTION  
 ETHICS  
 DECISION-MAKING PROCESS  
 SUSTAINABLE DIALOGUE  
 EVOLVING PARADIGMS  
 OPEN SOURCE  
 EARLY CAREER  
 UNCERTAINTY  
 OBSERVATIONAL KNOWLEDGE  
 EXPLORATION  
 RESOLUTION  
 TRUST PROMOTERS  
 KNOWLEDGE  
 IMPROVING DATA SOURCES  
 INDICATION BY MODELING APPROACHES  
 LOCAL UNIVERSITIES  
 TRANS



YOUNG  
 EARTH SYSTEM  
 SCIENTISTS  
 community

# GEWEX

Young  
 Hydrologic  
 Society



YESS community

1st YESS-YHS Early Career Researcher (ECR) Workshop 2018

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

3-5 May 2018, Banff, Alberta, Canada

Speakers: - John Pomeroy (USASK)  
 - Graeme Stephens (PL/NASA)  
 - Peter van Oevelen (GEWEX IPO)

Information and the updated program at:  
[www.events.org/events/2018conferenc/eca/](http://www.events.org/events/2018conferenc/eca/)

Opinion

Creating Community for Early-Career Geoscientists

Independent involvement in geoscience unions: A case study from





8TH GEWEX OPEN SCIENCE CONFERENCE: EXTREMES  
AND WATER ON THE EDGE

**MAY 6 - 11, 2018 | CANMORE, ALBERTA, CANADA**

**ECR Best Presentation Award Ceremony**



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# Congratulations!



YOUNG  
EARTH SYSTEM  
SCIENTISTS  
community



# Thank you



#GEWEX2018EarlyCareer

@YoungHydrology

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