ECR Plenary

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

11 May 2018
GEWEX OSC, Canmore, Canada

#GEWEX2018EarlyCareer
@YoungHydrology
@YESSCommunity
Outline

- Introduction to YHS & YESS networks
- YESS-YHS ECR workshop outcomes
- ECRs & GEWEX outlook
- Best presentation award ceremony
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 H3S 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 Włostowski (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 Flörancias (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 Włostowski (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 Flörancias (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)
- Lizzie Melsen (Wageningen University)
- Wouter Knoben (University of Bristol)
- David Wright (University of Adelaide)

**Country Representatives**
- Austria – Daniel Klotz
- Bangladesh – Shahadat Hossain
- Ethiopia – Fasil Tesfhome Worku
- Germany – Hannes Müller, Ina Pohle
- Greece – Nikolaos Vavlas
- Ireland – Shaun Harrigan
- Jordan – Mohammad Alqadi
- Kenya – Ruth Katui Nguma
- Nigeria – Isaac Adeleji, Bethel Ukazu Ugochukwu
- Norway – Jonathan Rizzi
- Pakistan – Shabeel ul Hasson
- Russia – Georgy Ayzel
- Senegal – Ansoumana Bodian
- Serbia – Nikola Zlatanovic
- South Africa – Coli Ndzabandza
- Sudan – Modathir Zaroug
- Sweden – Claudia Teutschbein
- Switzerland – Andrea Popp, Marius Flörancias
- Turkey – Nilay Dogulu
History

- Establishment 2010-2012
- LinkedIn
- 2013
  - EGU activities
  - AGU activities
  - Getting in touch with the YHS
- 2014
  - Future of scientific meetings
  - Water Pop-ups
  - How to write a paper in hydrology
  - Meet the expert in hydrology
- 2015
  - Teaching hydrology
  - Hydroinformatics
  - twitter
Connecting Experts and ECRs

Stimulate thinking about the “bigger picture”
Scientific sessions with a twist

HS1.11
Learning from hypotheses and failures in hydrology PICO session
Convener: Hannes Müller Q, Inge Wiekenkamp Q,
Co-Convener: Anne Fangmann Q, Georg Houben Q, Ina Pohle Q, Michael Stockinger Q, Lena M. Tallaksen Q, Tim van Emmerik Q, Seth Westra Q
≈ PICOs / Mon, 24 Apr. 15:30–17:00 / PICO spot A

HS1.10
How my water research made the news PICO session
Convener: Stefanie Lutz Q,
Co-Convener: Andrea Popp Q, Tim van Emmerik Q, Manuel Felipe Rios Gaona Q
≈ PICOs / Wed, 26 Apr, 13:30

HS1.6
Water Sciences Pop-Ups PICO Session
Convener: Tim van Emmerik Q,
Co-Convener: Shaun Harrigan Q
≈ PICO / Mon, 13 Apr, 10:30–11:08 / PICO

YoungHydrologicSoc. @YoungHydrology
Great turnout at the hypothesis PICO
#EGU17

The invited speakers will (1) high communicating scientific results (4) illustrate how to communicate
This session provides (early career) scientists PICO poster discussion, on their future vision scientists and the general public. Presentation issues like the future of publishing, education notable examples from previous editions of this
We specifically encourage students and early career stage, with the goal of having a divers...
Short courses and workshops

Quick recap on EGU 2017 Short course on Hydrological Forecasting
Posted on July 14, 2017 by shaurchiiaan

For the first time at this year’s EGU 2017, HYPS and the YHS jointly organized a Short course on Hydrological Forecasting and:
- Estimating
- Reducing risk
- Forecast verification

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 overfilled) learned about geostatistical methods.

An Introduction to C Geostatistics in R (by post later this month)

Opinion papers in hydrology: Why and how? (short course) at EGU 2017
Posted on May 3, 2017 by hexastanney

Using R in Hydrology (short course) at EGU 2017
Posted on May 2, 2017 by shaurchiiaan

"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 rGR, 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.

Find their presentation:
Informal activities

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

Main content
• Updates
• Info about YHS
• Past resources
• Blog posts

Quick recap on EGU 2017 Short course on Hydrological Forecasting

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

~50,000 visits from > 150 countries
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 Views
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.

Creating Community for Early-Career Geoscientists

Student involvement in geoscience unions: A case study from hydrology

By Wouter R. Berghuls, Shaan Harrigan, Evan L. Kipnis, Nilay Dogulu, Morius Florianczik, Hannes Müller, Ina Pohle, Sheila M. Salo, Frank Sedlar, Moorten Snoerenburg, 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; European Geosciences Union, 2013].
YOUNG EARTH SYSTEM SCIENTISTS community
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.
Provides an *international platform* for interdisciplinary early career researchers in Earth system science.

**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.

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

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

Reduces carbon footprint and enables interaction across regions and cultures through *a fully online network*. 
>1000 members from >110 countries
YESS is focused on (but not limited to) PhD students, Post-Docs, Master students and early career researchers 5 yrs after their latest degree.
History

- 2009: YESS established at MPI, Hamburg
- 2010: Int community building
- 2011: YESS present at many conferences in Germany & internationally
- 2012: YESS 1st contact with WCRP and wrote proposal to WWRP
- 2013: YESS published a white paper presenting an ECR vision on the future of Earth System Science
- 2014: YESS Frontiers - ECR Workshop 2015 led by YESS - endorsed by WW/WCRP and GAW
- 2015: 1st YESS Elections for an international board
- 2016: YESS and YHS jointly organized the 2018 ECR Workshop
- 2017: YESS invited to int panels and meetings
- 2018: YESS Office established at Argentina Met Service
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

Africa’s young climate scientists face challenges

Reflections on the CLIVAR Early Career Scientists Symposium 2016
International community

High-level panel at 30th Celebration of IPCC

Future Earth KAN Emergent Risks and Extreme Events Scoping Workshop

COP23

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

WCRP JSC-39 meeting

CLIVAR ECSS, Qindao, 2016
“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 or e-mail us: contact@yess-community.org
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

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
Objective

Exploring data sources; usage of conventional and unconventional data and new data technologies to improve weather, water, and climate data services.
I. State-of-the-art/Inventory

II. Scientific needs

III. Data sources for different users

IV. Looking into the future
Data sources

- Conventional challenges
- Unconventional challenges

ECRs

FUTURE

Young Hydrologic Society

YESS Community

Young Earth System Scientists community
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
Unconventional data sources

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?
ECR perspective into the future

**conventional**
- ensure open access
- adding value to historical data
- feedback to source
- keep detailed documentation

**unconventional**
- Remote areas
- Real time monitoring
- Conduct a global assessment to understand quality, limitations, opportunities, standardization, and integration into existing systems

YOUNG EARTH SYSTEM SCIENTISTS community

ECRs

Young Hydrologic Society
Scale-interactions

User needs

Observations  GCMs  RCMs  Interaction  User-driven science  Fundamental science  Users

YOUNG EARTH SYSTEM SCIENTISTS community

Young Hydrologic Society
Scale-interactions

Challenges:

● Understanding & regional extreme

● GCMs → RCMs → Convection Permitting Models/hydrological models/NWP...

● Increasing amount of models and divergence across them

● Diversity of methodological approaches across modeling scales
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
User needs

Challenges

- Limited understanding between scientists and users
- Balancing fundamental and user-driven science
- Trust building
ECR Perspective into the future

- Iterative dialogue
- Continuous and evolving narratives
- Information in decision-making context
- Answering and generating user needs
- Trust facilitators
- Equal treatment of knowledge
Data sources

Scale-interactions

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

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

ECR Best Presentation Award Ceremony
Julian Giles, CIMA
8TH GEWEX OPEN SCIENCE CONFERENCE: EXTREMES AND WATER ON THE EDGE

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

Julian Giles, CIMA
Mia Gross, UNSW
8TH GEWEX OPEN SCIENCE CONFERENCE: EXTREMES
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Emily Slinskey, Portland State University
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Julian Giles, CIMA
Mia Gross, UNSW
Liyun Yang, Nanjing University
Emily Slinskey, Portland State University
Andreas Prein, NCAR
Congratulations!
Thank you