

Strategic Action Plan

Paving the way for YESS, 2020-2023 and beyond



**YOUNG
EARTH SYSTEM
SCIENTISTS**
community

Dear reader,

The Young Earth System Scientists (YESS) community's Strategic Action Plan is the result of a consultation with present and past YESS members, as well as key partners about the role of YESS within the Earth system science community. The Strategic Action Plan elaborates on the vision and plans for the next 2-3 years and indicates longer-term visionary goals for the YESS community. The Strategic Action Plan aims to be a rolling document, updated by YESS members every few years. The YESS Strategic Action Plan was developed during 2019 and became operational in 2020.

YESS Executive Committee 2019-2020-2021

Lead Authors

Marisol Osman¹

Gaby S. Langendijk²

Carla N. Gulizia¹

Shipra Jain³

Yuhan Rao⁴

Muhammad Adnan Abid⁵

Jorge Saturno⁶

Faten Attig Bahar⁷

Valentina Rabanal⁸

This document was prepared with contributions of the Executive Committees of 2019 - 2020 and 2020-2021.

1. Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Centro de Investigaciones del Mar y la Atmósfera (CIMA), UMI-IFAECI (CNRS), Universidad de Buenos Aires (UBA), Buenos Aires, Argentina. /Universidad de Buenos Aires (UBA), Facultad de Ciencias Exactas y Naturales (FCEN), Departamento de Ciencias de la Atmósfera y los Océanos (DCAO), Buenos Aires, Argentina.

2. Climate Service Center Germany (GERICS), Helmholtz Centre Geesthacht (HZG), Hamburg, Germany

3. School of Geosciences, University of Edinburgh, Edinburgh, United Kingdom

4. North Carolina State University, North Carolina Institute for Climate Studies, Asheville, North Carolina, United States

5. Earth System Physics, The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy

6. Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany

7. Chair of Wind Energy Technology, Faculty of Mechanical Engineering and Marine Technology- University of Rostock, Germany

8. Servicio Meteorológico Nacional (SMN), Buenos Aires, Argentina.

I. YESS: a vast growing bottom-up early career community

I.I. An introduction

The Young Earth System Scientists (YESS) community was founded in Hamburg in October 2010 by PhD students from Earth System research centers across Germany. The bottom-up network was established to enhance communication and collaborations between different graduate schools and between the multitude of diverse research institutes that define the Earth system science landscape.

YESS has since become more international and interdisciplinary. Currently (October 2020), YESS has more than 1800 members from over 120 countries around the globe. YESS is led by an enthusiastic, voluntary team, and collaborates with several international partners. YESS is independent and fully self-organised by and for early career researchers (ECRs). YESS welcomes ECRs from a range of scientific backgrounds and aims to create synergies between researchers in natural and social sciences who represent the future of Earth system science.

YESS activities are organised and led by the Working Groups, Regional Representatives, the Council, and an Executive Committee, all of whom are assisted by the YESS office. The Regional Representatives and Executive Committee are elected by the Council on a yearly basis. YESS does not have central funding or a strict hierarchical structure and strongly relies on the voluntary work of enthusiastic early career researchers (ECRs) at all levels of the organisation (Figure 1). YESS aims to remain flexible and agile in response to rapidly changing and evolving contexts.



Figure 1. YESS community structure.

YESS established a collaboration with the research arms of the World Meteorological Organisation (WMO), a specialized United Nations agency for weather, climate, and water. Since November 2015 and April 2016, YESS is officially endorsed by WMO's World Weather Research Programme (WWRP) and its co-sponsored (with ISC and IOC-UNESCO) World Climate Research Programme (WCRP). As a result of this valuable endorsement and support, the Argentina National Weather

Service offered to host the international YESS office. The YESS office was established in 2017 and makes invaluable contributions to the activities of YESS and the sustainability of the network. The YESS office provides support to daily tasks and helps in the coordination of events and organization of the activities of the YESS Working Groups. The YESS office also assists the Executive Committee and works closely with the YESS Council.

Since its foundation, YESS has developed an international presence, including the participation in and contribution to WCRP Joint Scientific Committee meetings, WWRP Scientific Steering Committee meetings, European Geophysical Union and American Geophysical Union conferences, WMO events, International Association of Meteorology and Atmospheric Sciences conferences and Future Earth activities. YESS has also organized, in cooperation with other early career networks, specific workshops targeted at early career researchers. The workshops brought together students and early career researchers to discuss an interdisciplinary perspective on topics such as “water cycle under climate change”; “weather, water and climate extremes”; among others, putting emphasis on the role ECRs play in defining and addressing these scientific topics.

YESS has been actively involved and has fostered the publication of several scientific articles, highlighting ECR visions on grand challenges in Earth system science and how ECRs can help addressing these challenges.

YESS has encouraged the involvement of ECRs in international panels and activities. For instance, YESS has a seat on the WMO Research Board and the Global Energy and Water Exchanges- Global Atmospheric System Studies (GEWEX-GASS) panel. YESS has provided a collective voice to ECRs by providing consolidated ECR perspectives on international strategic science plans and agendas (e.g. WCRP Strategic Plan 2019, The Future of SPARC) and co-organising ECR group reviews of the Intergovernmental Panel on Climate Change Working Group I and II 6th Assessment Report (IPCC AR6, WG I & II), among others.



¹ See Rauser and co-authors, 2014: ICYESS2013: Uncertainty as an example of interdisciplinary language problems. *Bull. Amer. Meteor. Soc.*, 95, ES106–ES108. <https://doi.org/10.1175/BAMS-D-13-00271.1>. Rauser and co-authors (2015): Sustainable early-career networks. *Nature Geosci* 8, 745–746. <https://doi.org/10.1038/ngeo2541>. Rauser and co-authors, 2017: Earth System Science Frontiers: An Early Career Perspective. *Bull. Amer. Meteor. Soc.*, 98, 1120–1127, <https://doi.org/10.1175/BAMS-D-16-0025.1> Dike and co-authors, 2018: Obstacles facing Africa's young climate scientists. *Nature Clim. Change* 8, 447–449. <https://doi.org/10.1038/s41558-018-0178-x> and Langendijk, G.S. and co-authors, 2019: Three Ways Forward to Improve Regional Information for Extreme Events: An Early Career Perspective. *Front. Environ. Sci.* 7:6. <https://doi.org/10.3389/fenvs.2019.00006>

I.II. Target group of the YESS community

YESS focuses on early career researchers working in the interdisciplinary field of Earth system science. YESS defines Earth system science in a broad and interdisciplinary sense that addresses both natural and social sciences. Members within YESS cover a wide breadth of scientific disciplines, including – but not limited to – weather, climate, atmospheric composition, geophysics, ecology, economics, engineering, hydrology, architecture, anthropology, governance, sustainability and many more.

YESS welcomes PhD candidates, Postdocs, active university students, and early-career researchers within 7 years* of receiving their highest degree in the Earth system sciences.

YESS' main focus is on academia. YESS also welcomes members from other sectors related to Earth system science, following a broader definition of 'research'. This may include researchers and young professionals in governmental institutes, NGOs, public outreach institutions, and the private sector.

**Provided parental leave fell into that period, up to one year of parental leave time may be added per child, where appropriate.*



I.III Vision

The YESS community strives to help shape the future of Earth system science, by fostering international and transdisciplinary leaders of tomorrow who pioneer the development and delivery of research and knowledge, which provide solutions to benefit society, towards a more equitable and sustainable future.

“YESS aims to continue pioneering crucial areas of Earth system science which provide solutions to understand and protect our natural environment while ensuring societal benefit around the globe”.

I.IV Mission

YESS, as an interdisciplinary, international, and bottom-up early career researchers network in the Earth system sciences, promotes both local and global collaborations and exchange among early career scientists across disciplines related to Earth system sciences, while actively fostering career development. YESS aims to contribute to shape and provide a collective voice to the (inter)national research agenda and initiatives, and create opportunities for future leaders around the globe. YESS aims to enhance opportunities for early career researchers from underrepresented regions and identities to generate a more inclusive and equitable research community.

“YESS is an interdisciplinary, international, and bottom-up early career researchers network in the Earth system sciences.”

I.V Main goals of YESS

- Provide an **international platform** for early career researchers to **enhance interactions** between members. This platform serves as an **independent way to communicate**, while setting an example for the scientific community through **an online network**, reducing our carbon footprint and enabling interactions to build an interdisciplinary network that young researchers can benefit from throughout their careers.
- **Foster the future generation** of Earth system science researchers through workshops, meetings, and online activities. YESS activities seek to build capacity, raise the scientific profile of early career researchers and stimulate scientific exchange.
- Particularly support and nurture a generation of early career researchers that envision and work towards transformations **to more equitable and sustainable futures**.
- Serve as a **powerful partner** to give early career scientists a collective voice **by initiating and strengthening collaborations** with **different (inter)national programmes and initiatives**.
- **Create opportunities and encourage the participation** of early career researchers in international organizations and initiatives, as well as in scientific events, ranging from local to global scope, promoting diversity including a balance between gender, regions and career stage.

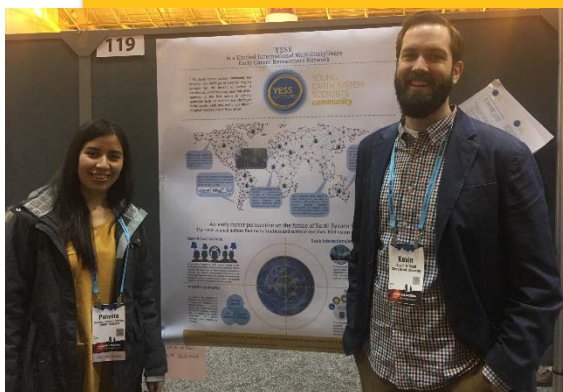


II. Building a strong early career researchers community

YESS continues to grow as an interdisciplinary Earth system science network, encompassing currently (October 2020) more than 1800 members from over 120 countries. Starting as a local network in Germany, its international structures now span all continents across the world with regional representatives, a global board of Council members, and an international Executive Committee. The working groups represent the core of the YESS community, leading the fundamental activities that make up the groundwork of YESS. From active Master's students, PhDs, to early career scientists at the beginning of their postgraduate careers, the YESS presence makes the community visible in a large number of national and international events taking place all around the world, helping to continuously grow and further strengthen the community. The following strategic objectives and implementation actions have been defined to further build a strong early career researchers community.

II.1. Strategic objectives

- 1) **Stimulate the growth, diversity, and engagement** of the YESS community through engaging more active members in the core structure of YESS, to ensure a vital and sustainable community.
- 2) **Engage early career professionals** in the broader 'research' context, particularly within National Meteorological and Hydrological Services (NMHSs), but also members from NGOs, consultancies, governmental institutions working in the context of Earth system science and particularly related to Earth system science.
- 3) **Raise the scientific profile** to stimulate scientific exchange within the YESS community and between its members, as well as with the inter(national) research community.
- 4) **Improve internal communication** to enhance the involvement of YESS members and the effective use of the YESS structure.
- 5) **Maintain and strengthen the governance structure**, while remaining flexible to respond to emerging needs to change the structure, if desired.
- 6) **Solicit sustainable support for YESS operations** to fund the basic infrastructure needed to maintain the YESS community.



II.II. Implementation

For each strategic objective implementable actions are outlined below, building on the current structure and capacity of the YESS community.

1) Stimulate the growth, diversity, and engagement of the YESS community

- ❖ Maintain the current structure, but recruit new members in a more effective manner, e.g.: recruit new Working Group members with specific tasks each year via a call, but leave the open nature (members can join Working Groups any time).
- ❖ Clearly communicate and invite existing members (personally) to become active members and/or to be part of the YESS Council (outlining the advantages of becoming a Council member: voting of Executive Committee and Regional Representatives, closely involved in shaping YESS, representing YESS in events/conferences, representing YESS in international initiatives).
- ❖ Continue the monthly YESS Teleconferences, which are open to the Council, Regional Representatives and Working Group members where activities are reported and actions are identified.
- ❖ YESS develops local activities to engage new members and to promote communication between the new and current members. This can also help to establish national collaborations between research institutions, graduate schools and networks.
- ❖ Ensure regional representatives to advertise YESS and recruit new members at universities and research institutions in their regions.
- ❖ Organise and represent YESS in summer schools, conferences, meetings etc., in collaboration with YESS partners and making best use of already-available resources.
- ❖ Increase ECR participation in all continents, particularly the underrepresented regions, potentially following the example of the YESS Africa regional group within YESS.
- ❖ Stimulate gender and geographic diversity on the YESS Executive Committee and Council.
- ❖ Continue to monitor geographic and gender diversity among the community and ensure that action will be taken when a misbalance is identified.
- ❖ Promote practices to ensure an inclusive and diverse space for members.
- ❖ Raise awareness of common obstacles faced by ECRs, such as well-being, by sharing resources and tools that help to deal with those issues.

2) Engage early career professionals beyond academia

- ❖ Particularly target National Meteorological and Hydrological Services (NMHSs), Regional Climate Centers and environmental agencies to extend towards a network encompassing early career professionals and operational members.
- ❖ Connect to larger NGOs, stakeholders and organizations at the science-policy interface in the context of Earth system science.
- ❖ Engage more members with a social science background and early career research professionals, working in projects related to Earth system science to enhance the interdisciplinarity within the community.

3) Raise the scientific profile

- ❖ Within the Science Working Groups and beyond, (synthesis) papers shall be encouraged among members.
- ❖ Science Highlights are to be published on a regular basis at the YESS website and social-media channels, highlighting recently published research by YESS members.

- ❖ Local YESS activities may be helpful to gather information about the perspectives and opinions of ECRs on certain topics that can be used, for example, to generate perspective articles.
- ❖ Develop activities/side events at big meetings or conferences, or online, to provide ECRs with tools and advance their skills in e.g. paper and proposal writing, project leadership, effective communication of scientific results to various stakeholders, etc.

4) Improve internal communication

- ❖ Hold online webinars, seminars and other activities (online and non-online), also open to non-YESS members. This would simultaneously enlarge YESS' visibility and encourage new members to join YESS.
- ❖ Maintain and update the YESS website with more information on current activities, develop a new format and use the membership platform in a more active manner.
- ❖ Continuity of the YESS Newsletter.
- ❖ Encourage YESS members who attend conferences, and other events where they can act as YESS representatives to write a brief report after they return from the event, and if possible add a photo of their participation. This will help to have an updated archive of YESS members participation in the worldwide Earth system science community events.

5. Maintain and strengthen governance structure

- ❖ Share responsibilities in each Working Group in order to have more active members working on different tasks and so not all the responsibilities fall on one or few members in each Working Group.
- ❖ Create more visibility of what has been done, what is going on, and what will be done in each Working Group through an accessible and regularly updated report.
- ❖ Establish chairs/vice-chairs of Working Groups.
- ❖ Set clear tasks within the Working Groups and ensure regular updates on the tasks are communicated to the Working Groups and the broader community.
- ❖ Ensure the YESS bodies (Executive Committee, Regional Representatives, Council and Working Groups) work through the 'find your replacement incentive', meaning that if members are rotating off a role they actively seek a replacement. We will consider retaining a part of the elected Executive Committee members to maintain a smooth transition. YESS will continue to follow a democratic approach for selection of the Executive Committee members.
- ❖ Conduct an annual revision of the current YESS membership status in the YESS groups to redefine the composition of Working Groups, council, etc. every year.
- ❖ The incoming opportunities from the YESS partners/collaborators (e.g. participation in regional activities, membership of panels, etc.) will be opened and disseminated to YESS members. The nomination is often through a democratic, transparent process. This approach shall be continued, to ensure that the opportunities are available to the wider community.

6. Solicit sustainable support for YESS operations

- ❖ Contact related organisations to seek their interest in helping to build the community (e.g. fund collaborative research projects, travel scholarships).
- ❖ Approach partners to ask for continuous funding on specific aspects to maintain the infrastructure (such as web hosting, teleconference tool, etc).
- ❖ Set up a YESS alumni group for supporting and guiding the YESS activities.

III. Strengthening international presence and fostering collaborations

Since the beginning, YESS has been a proactive network developing strong relationships with different institutions and organizations around the world. During the first steps, YESS partnered with and received support from the Hamburg Excellence Cluster CliSAP and the German Climate Consortium (DKK). In 2015, the YESS Community started working closely with the three core research arms of the World Meteorological Organization (WMO), respectively the World Climate Research Programme (WCRP), the World Weather Research Programme (WWRP) and the Global Atmosphere Watch (GAW). More recently, YESS has increasingly worked together with Future Earth and the Intergovernmental Panel on Climate Change (IPCC).

In addition, it was also important for YESS to collaborate with other early career networks, such as the Association for Polar Early Career Scientists (APECS), the Early Career Researchers Network of Networks (ECR NoN) and the Young Hydrologic Society (YHS), among others.

YESS is increasingly becoming an essential part of the international research community.

III.I. Strategic objectives

- 1) **Ensure ECRs have a voice throughout the (inter)national science community**, helping to shape the research landscape through the participation in research entities backed by a powerful network.
- 2) **Maintain and strengthen collaborations** with existing and new partners.
- 3) **Establish scientific presence and excellence.**



III.II. Implementation

For each strategic objective implementable actions are outlined below, building on the current structure and capacity of the YESS community.

1) *Ensure ECRs have a voice throughout the (inter)national science community*

- ❖ Solicit opportunities to increase the presence or participation of YESS members in major panels, boards, etc. Promote the inclusion of early career researchers representation/membership in international initiatives.
- ❖ Provide training to YESS members on how to be successful in fulfilling representative roles, and how to report back to and engage the broader YESS community.
- ❖ Organise side events to introduce YESS and its work to major players at international conferences where (inter)national research entities are present.
- ❖ Publish ECR perspective papers with a consolidated perspective on research topics and scientific challenges.
- ❖ Increase YESS representation in (inter)national research bodies and programmes.

2) *Maintain and strengthen collaborations with existing and new partners*

- ❖ WMO and its research branches: strengthen collaborations, particularly in light of the new Governance Reform and through the ECR representative at the WMO Research Board. Develop a clear strategy to ensure a common ECR voice is represented at the WMO Research Board.
- ❖ Maintain the cooperation and the partnership with the current partners (go to partners). Define liaisons to existing partners and develop liaisons to new partners (1-2 per partner), to ensure close communications and to develop a mutual understanding of expectations and opportunities.
- ❖ Following the example of previous collaborations with ECR partners, e.g. APECS and YHS, aim to develop joint activities with new partners beyond the scientific early career networks, tapping into professional early career networks. Joint workshops or webinar series are desirable activities.
- ❖ Work with other ECR networks to have activities targeted at ECRs during major events such as EGU, AGU and IUGG, possibly in collaboration with existing initiatives.
- ❖ Increase YESS participation in Future Earth, mainly through the ECR NoN.
- ❖ Build the link between ECRs, professional associations and international scientific groups.
- ❖ Increase partnerships with regional and local early career organizations through Regional Representatives (Earth sciences related or other overlapping goals).
- ❖ Establish a key regional partnership in each region through working with the Regional Representatives.
- ❖ Work with the current partners and other ECR networks to develop actionable points to ensure diverse and inclusive practices within the community.

3) *Establish scientific presence and excellence*

- ❖ Publish ECR perspectives on science topics and ensure that they are shared with relevant parties/partners.
- ❖ Launch a YESS research award for promising research coming from the ECR community.
- ❖ Decide on a science topic each year, where the community will focus its efforts on (e.g. a webinar, paper, statement).
- ❖ Continue with the promotion of interdisciplinary approaches to tackle the main challenges that the Earth system community has, putting emphasis on a better interaction with boundary organizations and society. Partner with ECR network from other disciplines to develop interdisciplinary projects and perspectives related to those challenges.
- ❖ Actively participate in international programmes by contributing to the scientific activities.
- ❖ Seek to further develop the evaluation matrix of research, ranging from traditional approaches (scientific merit/publications) to creating value for publishing grey literature and science-policy products.



References

Dike, V. N., Addi, M., Andang'o, H. A., Attig Bahar, F., Barimalala, R., Diasso, U. J., et al, 2018: Obstacles facing Africa's young climate scientists. *Nature Clim. Change* 8, 447–449. <https://10.1038/s41558-018-0178-x>

Langendijk, G.S., Aubry-Wake, C., Osman, M., Gulizia, C., Attig-Bahar, F., Behrens, E., Bertoncini, A., Hart, N., Indasi, V.S., Innocenti, S., van der Linden, E.C., Mamnun, N., Rasouli, K., Reed, K.A., Ridder, N., Rivera, J., Ruscica, R., Ukazu, B.U., Walawender, J.P., Walker, D.P., Woodhams, B.J. and Yilmaz, Y.A, 2019: Three Ways Forward to Improve Regional Information for Extreme Events: An Early Career Perspective. *Front. Environ. Sci.* 7:6. <https://doi.org/10.3389/fenvs.2019.00006>

Rauser, F., A. Schmidt, S. Sonntag, and D. Süsser, 2014: ICYESS2013: Uncertainty as an example of interdisciplinary language problems. *Bull. Amer. Meteor. Soc.*, 95, ES106–ES108. <https://doi.org/10.1175/BAMS-D-13-00271.1>

Rauser, F., Schemann, V. & Sonntag, S., 2015: Sustainable early-career networks. *Nature Geosci* 8, 745–746. <https://doi.org/10.1038/ngeo2541>

Rauser, F., M. Alqadi, S. Arowolo, N. Baker, J. Bedard, E. Behrens, N. Dogulu, L.G. Domingues, A. Frassoni, J. Keller, S. Kirkpatrick, G. Langendijk, M. Mirsafa, S. Mohammad, A.K. Naumann, M. Osman, K. Reed, M. Rothmüller, V. Schemann, A. Singh, S. Sonntag, F. Tummon, D. Victor, M.Q. Villafuerte, J.P. Walawender, and M. Zaroug, 2017: Earth System Science Frontiers: An Early Career Perspective. *Bull. Amer. Meteor. Soc.*, 98, 1120–1127. <https://doi.org/10.1175/BAMS-D-16-0025.1>

Photo Credits

Page 3: GEWEX/Pam Doyle, ECR Workshop, Canmore, Canada, 2018.

Page 4: WCRP, ECR Frontiers Workshop, Offenbach, Germany, 2015.

Page 6: GEWEX/Pam Doyle, ECR Workshop, Canmore, Canada, 2018.

Page 7: (top left) Kevin Reed, AGU Fall meeting, USA, 2018. (bottom left & top right) GEWEX/Pam Doyle, ECR Workshop, Canmore, Canada, 2018. (bottom right) Narelle v.d. Wel, WCRP, ECR workshop, AGU/WCRP climate science week, SF, USA, 2019.

Page 10: (top left) Narelle v.d. Wel, WCRP, WCRP 40th Anniversary Symposium, AGU/WCRP climate science week, SF, USA, 2019.

Page 12: Narelle v.d. Wel, WCRP, WCRP-YESS: YHS ECR workshop, AGU/WCRP climate science week, SF, USA, 2019.

Note: all other pictures are taken by YESS members or direct connections without courtesy.

