



## **Towards a well-connected, global, interdisciplinary research community for rational decision making in the Anthropocene**

Florian Rauser and the YESS Council Team

Max Planck Institute for Meteorology, Hamburg, Germany (florian.rauser@mpimet.mpg.de)

The Young Earth System Scientists community YESS ([yess-community.org](http://yess-community.org)) is a global network of Earth System Science early career researchers focussing on interdisciplinarity. One of the central goals of our early career network is to communicate to the world that Earth System Science has accepted the central challenge of creating tangible products for the benefit of society. A coordinated and truly global approach to Earth System Science is our best attempt to focus our understanding of the complex interplay of Earth's processes into tools for future societies, i.e. for humanity to move away from being a sorcerer's apprentice and to become a rational actor. We believe that starting with the next generation of Earth system scientists to work on that unified approach and creating an environment that allows ambitious, forward-thinking, interdisciplinary science to blossom will be our best way forward into a mature Anthropocene.

In 2015 YESS started a process to come up with a definition of the Frontiers of Earth System Science research from an early career perspective, together with the research arms of the World Meteorological Organisation (WMO). During this process it became apparent that there are a few major aspects that cannot be put into the forefront often enough: one, the reality of capacity building; societies can only have robust decision-making if their decision makers can be advised not only by global assessment processes like the Intergovernmental Panel on Climate Change (IPCC) but also by local experts. The reality of a globalised science community is often only true for a few scientists at the very top from a selected number of countries. Two, the integration and balance of both user-driven and fundamental research is key to make science one pillar of a global, mature Anthropocene. This includes a better way to communicate science to end users and a more comprehensive homogenisation of weather and climate research agendas. Three, a complete overview of the scales of predictability and control of the Earth system has to be developed and maintained as a basis of societal decision making. Four, the interdisciplinary research that is required for better understanding the Anthropocene requires global research coordination across fields that is currently not necessarily reflected in standing research organisation structures. Five, the necessity of better integration of science into societal decision processes. The 2015 Conference of the Parties 21 in Paris has shown what is possible on a global, aggregated policy level – but the next years will have to show which societal actors can be thought of as rational and deliberate. This point addresses the issue that science alone is not the rational actor we need in the future, but can only advise those actors.

In this session we want to outline those arguments with examples and discuss the influence of a global research funding structure that often reflects what we did in the past more, than what we want to do in the future. This discussion includes an example of the concept of science based target setting, a methodology developed to transfer scientific information into guidelines for companies.