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Designing a pan-African climate observation system to deliver societal benefit through climate action: The KADI project

Karlina Ozolina[1], Theresia Bilola[2], Matthew Saunders[3], Emmanuel Salmon[4], Ingunn Skjelvan[5], Tommy Bornman[6], Jörg Klausen[7], Gregor Feig[8], Lutz Merbold[9], and **Werner Kutsch**[10]

[1]ICOS ERIC, Helsinki, Finland (karlina.ozolina@icos-ri.eu)
[2]ICOS ERIC, Helsinki, Finland (theresia.bilola@icos-ri.eu)
[3]School of Natural Sciences, Trinity College Dublin, Ireland (saundem@tcd.ie)
[4]ICOS ERIC, Helsinki, Finland (emmanuel.salmon@icos-ri.eu)
[5]NORCE Research, Norway (insk@norceresearch.no)
[6]SAEON, South Africa (tg.bornman@saeon.nrf.ac.za)
[7]Meteoswiss, Switzerland (joerg.klausen@meteoswiss.ch)
[8]SAEON, South Africa (gt.feig@saeon.nrf.ac.za)
[9]Agroscope, Switzerland (lutz.merbold@agroscope.admin.ch)
[10]ICOS ERIC, Helsinki, Finland (werner.kutsch@icos-ri.eu)

Climate change is having a global impact through the increased frequency, magnitude and duration of droughts, fires, floods and other extreme climatic events. The societal solutions to this crisis depend on the ability of policy makers, private enterprise, and society at large to access and utilise scientific research into climatic variables and carbon/greenhouse gas dynamics across scientific domains. This will also require connecting, exchange and collaboration between these stakeholders. One of the most suitable approaches that supports the needs of all parties is the development of standardised observations in sustainable research infrastructures (RIs), that can facilitate both basic and applied scientific analyses and produce the data products needed.

The Horizon Europe funded KADI project (**K**nowledge and climate services from an **A**frican observation and **D**ata research **I**nfrastructure) aims to provide the conceptual framework for the future implementation of a pan-African RI that delivers the science-based services to fully address the requirements of the Paris agreement and the UN SDGs. The project aims to have direct societal benefit through facilitating inter-disciplinary cooperation between African and European Partners and conceptualising the requirements for climate change observations in Africa.

The project works towards the development of a comprehensive design for a pan-African climate observation system using the climate services identified and required by key stakeholders as a guiding design principle, and further building on the knowledge compiled and gaps identified through the SEACRIFOG collaborative inventory tool, the OSCAR/Surface, OSCAR/Space and OSCAR/Requirements tools. The project connects scientists, data and knowledge users at local, national and global levels, to develop a community of practice in climate services. These networking and knowledge exchange activities allow for the development of an RI design study

and the identification of the key players who can implement the conceptual design as sustainable funding for long-term observations becomes available.

The main activities in the project utilise a co-design approach to identify the climate services required by key stakeholders and explore these through a series of climate service pilot projects that focus on the impacts of climate change on terrestrial ecosystems, coastal areas, urban developments and national GHG budgets. The outputs from this will inform the strategic design of the long-term observational and data infrastructures required. A knowledge exchange platform will facilitate pan-African and European innovation, linking the science-based concept design and the policy cooperation required to develop a functional and collaborative RI, and provide long-term sustainable support for the integration of African climate-services into global observation systems.