

## Topics (T)

## Understanding and Predicting the Climate Change for our Planet (1)

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ESA'S CLIMATE CHANGE INITIATIVE: HOW SPACE DATA SUPPORT OUR UNDERSTANDING  
OF CLIMATE CHANGE AND SUPPORT POLICY ACTION**Abstract**

A keystone of European Space Agency's (ESA) climate activities is the Climate Change Initiative (CCI), which has been running for more than a decade and is led by the ESA Climate Office. This unique scientific effort, improving our understanding of climate science and the quantification of its key processes, generates global multi-mission and multi-decadal datasets satisfying the requirements for more than 20 Essential Climate Variables (ECVs) defined by the Global Climate Observing System (GCOS), working with UNFCCC. These datasets have fully characterised uncertainties and are validated using independent, traceable, in-situ measurements. They provide an impartial yardstick to understand climate processes and to evaluate, improve and validate climate models, thereby enhancing the quality, credibility, and exploitation of their predictions.

ESA's contribution and role in addressing the requirements as formulated by the main climate policy drivers is substantial. ESA provides a focal point for RD into how observations from space can be used in climate science. In doing so, ESA contributes to the understanding of the state of the climate and its evolution as part of the IPCC assessments. This entails the development and improvement of high-quality climate data records (CDR), responding to and driving international standards, as the excellence base that underpins all further activities towards addressing the effects of climate change. Through ESA's close interaction with stakeholders and users and active participation in the relevant entities in the international climate landscape, ESA supports operational capabilities in the international decision and policy making process, policy implementation monitoring. This in turn supports activities of ESA's members states, for example under the UNFCCC Paris Agreement, addressing national and regional requirements as formulated in their Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs), which is the focus of the new ESA climate initiative: CLIMATE-SPACE.

The presentation will focus on current and future activities to respond to new requirements for EO to support the UNFCCC Paris Agreement.