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## **CONFESS: Consistent representation of temporal variations of boundary forcings in reanalyses and seasonal**

### **Description**

A climate resilient society requires reliable monitoring and forecasting information of the climate trends, patterns and disturbances, both at global and regional scales. Through CONSistent representation of temporal variations of boundary Forcings in reanalysES and Seasonal forecasts, CONFESS will contribute to the emerging societal need for an enhanced Copernicus Climate Change Service (C3S) that can support adaptation and mitigation strategies facing increased frequency and intensity of climate extremes.

The aim of CONFESS is to improve the reliability and usability of C3S information in the land-atmosphere coupled system by exploiting new and improved Earth Observations data records of land-use, vegetation states and surface-emitted aerosols delivered across different Copernicus Services. CONFESS developments will be integrated consistently for use in future C3S systems, enhancing the service s accuracy by representing annual changes of land use, adding satellite-derived and prognostic vegetation states along with aerosols emissions due to hazardous/extreme events such as volcanic eruptions and large-scale biomass burning (e.g. wildfires). The added capacity to represent temporal variations and trends of these variables and the occurrence of hazardous/extreme events will be supported by a rapid uptake of new Earth Observations. The impact on the Earth system will be evaluated on the quality of global reanalysis as well as seasonal forecasts using state-of-the-art modelling systems. The infrastructure and knowledge developed within CONFESS will contribute to improve the C3S capabilities for reliable monitoring and forecasting with particular focus on extremes.

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