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**Presentation Type:** Remotely, Oral

**Topic:** Recent ocean salinity science advances

**Title:** CCI-OSHF: A new ESA Climate Change Initiative to enhance ocean surface heat fluxes estimates

**Abstract:** Accurate estimates of ocean surface heat fluxes (OSHF) are essential for assessing and improving climate projections and supporting adaptation strategies, yet direct measurements are challenging, costly, and not feasible at global scales. The GCOS Implementation Plan 2022 emphasizes the urgent need to enhance estimates of latent and sensible heat fluxes, recommends greater use of satellite data, and highlights that current in-situ observing systems, such as Argo, are insufficient to provide the high-resolution data required for climate modeling and model validation.

The CCI OSHF project addresses this gap by generating a new satellite-based OSHF product aiming at meeting the climate community requirements for spatial and temporal resolution, timeliness, uncertainty, and long-term stability. By relying on fundamental physical principles rather than parameterizations and leveraging multiple satellite missions and in-situ observing networks, the product aims at reducing uncertainties.

After one year of the project, we will present the user requirements outcomes from the dedicated user consultation action, describe the methodology used to generate the product, and show preliminary results on the performance of the first 15-year version of the new satellite-derived OSHF dataset.

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