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Europe's space missions and services contributing to an improved connectivity in the Arctic

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The availability of Earth Observation, satellite navigation, satellite communication, and space situational awareness capacities covering the Arctic has become a key asset to help address the challenges posed in this region. In this context, a full understanding of the current capabilities available in Europe across these domains and identifying the potential synergies both at service and infrastructure level as well as gaps to be tackled is needed. The European Commission's Joint Research Centre has recently completed a study upon the request of the Directorate General for Internal Market, Industry, Entrepreneurship and SMEs, aimed at identifying the synergies across the four domains of the EU Space Programme. These synergies are expected to be key enablers of new services that will have a high societal impact in the region, which could be developed in a more cost-efficient and rapid manner. Similarly, synergies will also help exploiting operational services that are already deployed in the Arctic. We will present the main outcomes of this study. First, a summary of the user-needs across the four main domains is provided, covering the maritime sector, disaster risk management, monitoring essential climate variables and regulatory compliance, search and rescue services, and satellite service disruption. Challenges will be discussed related to sea ice, icebergs, coverage limitations and other topics. A large inventory of the current and future (i.e. next decade) European capacities in the Arctic was compiled. The presentation will discuss some examples, like Sentinels, Copernicus contributing missions, High Priority Candidate Missions (Copernicus Imaging Microwave Radiometer, Copernicus polar Ice and Snow Topography Altimeter, L-band synthetic aperture Radar Observing System for Europe) and the Emergency Warning Service of Galileo. At service level, synergies related to GNSS signals for the retrieval of geophysical parameters and synergies between GNSS and Satcom for fisheries and for Internet of Things applications will be presented. For synergies at infrastructure level, opportunities for specific payloads will be identified.
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