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Subject: Endorsement Letter – **ExtremeEarth** preparatory project for an EU Flagship

The Icelandic Meteorological Office (IMO) fully endorses the FET Flagship project *ExtremeEarth*. The preparatory phase of *ExtremeEarth* covers all the unifying goals set by the EU. The novel use of real-time, sensor-based data for exascale computing will produce new technological approaches and scientific results with widespread benefit to Europe and beyond. With the increasing societal impact of extreme weather and Earth-based natural hazards, the vision offered by *ExtremeEarth* will enable accurate assessments and predictions of the timing and impact of extreme Earth System events; an output that will have far-reaching societal implications for decades to come.

In Iceland, IMO has a government mandate to monitor and warn against a spectrum of natural hazards, including severe weather, flooding, damaging earthquakes, volcanic eruptions, and various types of mass movements. Furthermore, IMO is a designated State Volcano Observatory. To accomplish its tasks, IMO operates modern national monitoring networks for weather, water and the Earth, including radars specifically employed to monitor volcanic ash. The office also conducts multidisciplinary research in meteorology, climatology, hydrology, glaciology, seismology, and volcanology. This track-record is exemplified by several decades of international research funding and scientific collaboration. Furthermore, IMO is designated by the government to conduct hazard and risk assessments in all of its research fields.

IMO is responsible for handling large volumes of digital data, including satellites products and measurements from various national-scale monitoring networks. This diverse range of assimilated data, in a location prone to frequent and occasionally far-reaching natural hazards, could be put to excellent use in *ExtremeEarth*. Moreover, the project fits exceptionally well with IMO's ongoing development of forecasting strategies for hazards, in particular for volcanic eruptions, volcanic ash clouds and earthquakes but also extreme weather and severe flooding from land and sea. Hence, we are certain that the IMO could have very unique contribution to *ExtremeEarth*.

In addition to being a member of the ongoing Horizon 2020 project *EPOS*, IMO is also a partner of the *Center of Excellence for Exascale in Solid Earth (ChEESE)*, which begins this year with funding from the Horizon 2020 Programme. The solid-earth, exascale computing goals of the *ChEESE* project will complement the groundbreaking physical models that will be developed by *ExtremeEarth*.

We would be delighted to collaborate with the *ExtremeEarth* consortium and we wish you every success with this flagship venture. You are welcome to add this letter to the *ExtremeEarth* website as IMO's endorsement.

Sincerely yours,

A handwritten signature in blue ink, reading "Jorunn Harðardóttir".

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