

## SpaCe Research Hub Charter

The SpaCe Research Hub concerns fundamental and applied research related to space observations, space missions, space technology as well as the understanding of the universe in a broad sense. Our engagement in downstream research activities focus on the application of space data to advance the understanding of Earth with a special focus on supporting the [Sustainable Development Goals](#). Our Upstream research activities concern scientific instrumentation and payloads for space observations and satellite missions.

We are curiosity driven. Our scientific approach is interdisciplinary by nature. We have an international outlook and align our research to agendas of leading space agencies such as [ESA](#) and [NASA](#). We engage in the national public-private partnerships within related to space research and space exploration.

Activities in the SpaCe Research Hub at Aarhus University address the following themes:

Earth observation and remote sensing:

- Earth observation for studies in biodiversity, arctic environment, arable lands for food production, marine environments etc.
- Sun-Earth interactions and space weather
- Space data infrastructure and algorithms for big data analytics

Planetary systems:

- Exoplanet science
- Orbital dynamics

Instrumentation for space observations and planetary research

- Scientific instrumentation (telescopes, spectrometers, detectors etc.)
- Facilities and laboratories for planetary research e.g., climate chambers, cryostat environments, zero-gravity experimental facilities
- Ground infrastructure and space-ground integrated networks

Satellite systems and satellite mission operations

- Sensors and actuators for space crafts
- Satellite payloads (cameras, spectrometers, probes etc.)
- Satellite communication (radio communication, protocols and networks)
- Propulsion systems
- Satellite mission design and operation

Human-centric space science and technologies

- Space and human health factors such as influence from radiation, isolation, and gravity fields
- Philosophical and psychological implications of space.