



Research and development on Dragon 5 topics *(section 3.4 of the main text)*

Proposals from Sino-European teams will be invited that will address the following Dragon 5 themes identified by MOST China and ESA as shown in table 2. As for the Dragon 4 cooperation programme, the proposed themes have been aligned in order to reflect key societal issues and their relation of the science component to other initiatives, e.g. UN sustainable development goals, GEO societal benefit areas and the ESA EO science for society strategy. Continuity of Dragon 4 projects will be considered.

Topic	Sub-topic
1. Solid Earth	<i>1.1 Seismic deformation monitoring</i> <i>1.2 Monitoring of surface deformation of large landslides</i> <i>1.3 Infrastructure health diagnosis and safety monitoring</i> <i>1.4 Subsurface target detection</i>
2. Oceans & Coastal zones	<i>2.1 Algae and phytoplankton blooms</i> <i>2.2 Marine dynamic environment</i> <i>2.3 Sea surface characteristics</i> <i>2.4 Marine disasters</i> 2.5 Sea level rise and coastal zones management
3. Atmosphere	<i>3.1 Greenhouse gases and carbon emissions</i> <i>3.2 Air quality</i> <i>3.3 Atmospheric-terrestrial-marine carbon cycle</i>
4. Climate Change	4.1 Climate change modeling 4.2 Climate change adaptation and mitigation 4.3 Climate change resilience 4.4 Disaster prevention and monitoring
5. Sustainable Agriculture and Water Resources	<i>5.1 Food security</i> <i>5.2 Crop growth and yield monitoring</i> <i>5.3 Water resources and its utilization</i> <i>5.4 Drought and flood disaster</i>
6. Ecosystems	<i>6.1 Detection of forest cover change</i> <i>6.2 Collaborative estimation of forest quality parameters</i> <i>6.3 Grassland and its degradation monitoring</i> <i>6.4 Forest and grassland disaster monitoring</i>
7. Urbanization and Environment	<i>7.1 Urban expansion</i> <i>7.2 Urban land use structure and its change</i> <i>7.3 Urban environment</i> <i>7.4 Smart cities</i>
8. Cryosphere and Hydrology	8.1 Inversion of key elements of the cryosphere in Pan Third Pole Region 8.2 Validation of key elements of cryosphere in Pan Third Pole Region <i>8.3 Integration of eco-hydro models and multi-source data simulation</i> <i>8.4 Wetlands and ecology</i>
9. Calibration and Validation	<i>9.1 Satellite calibration field network and cross calibration</i> <i>9.2 Cross radiation calibration and normalization processing</i> <i>9.3 Validation network and technology</i> <i>9.4 Common product production and verification services</i>
10. Data Analysis	10.1 Big Data Analytics 10.2 Artificial Intelligence and Machine Learning 10.3 Cloud Platforms

Table 1. Dragon 5 ESA-MOST Joint Proposal Topics [new Dragon 5 items in bold]