

Annex

to the Understanding for the cooperation in the frame of the

Sentinel Collaborative Ground Segment between the European Space Agency and the National Observatory of Athens, acting in its capacity of Greece's National Point of Contact

(hereinafter "Letter of Understanding")

This Annex to the Understanding for the cooperation in the frame of the Sentinel Collaborative Ground Segment between ESA and the National Observatory of Athens, acting in its capacity of Greece's National Point of Contact, of 12 May 2014, describes the technical details and specific provisions of Sentinel Collaborative Ground Segment initiatives conducted under the said Understanding.

a) Collaborative Archiving and Dissemination Centres (CAC), National mirror site

Entity conducting the initiative	National Observatory of Athens (hereinafter "NOA") Represented by its President, Prof. Kanaris C. Tsinganos
Activity	<p>NOA intends to set-up a national Mirror Site for hosting and onward distributing Sentinel data, at the premises of the National Observatory of Athens (NOA), in order to ensure the access, archiving, and redistribution of Sentinel data and products for the derivation of value adding environmental services and information. The objective of this activity is to provide data also to neighbouring South Eastern Mediterranean and Balkan countries and Black Sea Region, on the basis of the existing and/or future transnational needs and co-operations.</p> <p>The Greek Mirror Site architecture has been designed and tested by the operational partners NOA & GREEK RESEARCH AND TECHNOLOGY NETWORK S.A. (GRNET) in collaboration with the technical staff of ESA.</p> <p>The Mirror Site architecture combines the NOA and GRNET (partner of GEANT) processing, archiving, retrieval and networking capabilities, with the use of cloud processing resources of the Okeanos IaaS services of GRNET. The designed infrastructure provides large scale capacities for the dynamic creation and unlimited use of powerful Virtual Machines (e.g. 8 cores, 8 GB RAM and 100 GB HDD), for satellite data processing.</p> <p>NOA makes available the appropriate interfaces for data and data catalogues handling, and the creation of meta-data catalogues and archives of the collected data/products.</p>

<p>ESA support</p>	<p>a) Access to Collaborative Data Hub</p> <p>ESA grants NOA access to the Collaborative Data Hub (ColIDH),[link to the portal], a rolling archive, providing bulk dissemination capabilities for Sentinel data products. The ColIDH will continuously store Sentinel data acquired during the last month(s) at the processing levels agreed as part of the Sentinel core data product list as defined in the CSC Operations Concept Document. It enables searching, browsing, previewing and downloading the Sentinel data. The time interval covered by the ColIDH rolling archive will be scalable and include at least the last month of data.</p> <p>Access to the ColIDH is allowed via a web authentication module. ESA will provide NOA with a username and password to access the ColIDH. This username and password may be used only by NOA (including its representatives, employees and contractors involved in the initiative) for the purpose of the initiative and will not be shared with other natural or legal persons.</p> <p>NOA will use the ColIDH access only for the purpose of its activity in the initiative described above. Through registration at the ColIDH, accessing and/or downloading available content, NOA shall not misuse or interfere with the service of the ColIDH portal. In particular, NOA aims at building up an own mirror archive of Sentinel data and hence will not repeat the download of identic datasets from the ColIDH, but store downloaded Sentinel data for re-use and re-dissemination.</p> <p>All functionalities and contents offered by the ColIDH are provided by ESA on a best efforts-basis, as set out in the Exchange of letters and the “General Clauses and Conditions for the Sentinel Collaborative Ground Segment cooperation with GMES Space Component Participating States” (hereinafter “General Clauses”). The transmission of content from the ColIDH may be interrupted or delayed by ESA in the event of technical constraints, such as the internet bandwidth. In such case, the download requested by NOA will be enabled later taking into account other users’ requests.</p> <p>b) Data dissemination</p> <p>GEANT is a broad bandwidth network coordinated by DANTE connecting European research and education institutions, which interfaces with national partner networks. GRNET is the Greek national partner network to GEANT, managed and owned by the General Secretariat for Research and Technology of the Ministry of Education and Religious Affairs in Greece.</p> <p>ESA will make best efforts to agree with GEANT/GRNET on connecting the ColIDH to GEANT/GRNET network. Upon such agreement, ESA will provide the appropriate data transfer protocols for the transfer of satellite data through the broad bandwidth networks of GEANT/GRNET. ESA assumes no</p>
--------------------	--

	<p>responsibility for data transfer taking place within GEANT/GRNET. Until data transfer is agreed upon between ESA and GEANT/GRNET, ESA will provide appropriate interfaces, to transfer Sentinel data to NOA via internet.</p>
<p>Time schedule</p>	<p>The proposed activities will start once Sentinel-1 data will become available in accordance with ESA data provision plan (e.g. after launch, commensurate with the ramp-up plan for data provision). Further data from Sentinel-2, Sentinel-3 and Sentinel-5 Precursor will be included as soon as available in accordance with the related ESA data provision plans.</p> <p>The National Mirror Site is expected to be a long term activity, and is planned be sustained by NOA & GRNET throughout the period in which Sentinel data are available.</p>
<p>Reporting</p>	<p>In line with section 5 of the Understanding, the NPC will keep ESA informed about the course and success of any Sentinel Collaborative Ground Segment initiative.</p> <p>The regular reports shall have at least annual frequency, and shall as a minimum contain information regarding:</p> <ul style="list-style-type: none"> • Sentinel data use and applications; • Onward-dissemination of Sentinel data, including user statistics of the Greek mirror site; • Any changes to the pre-agreed set up of activities that will have an impact on ESA’s support to the national activities. <p>More specifically, as concerns National Mirror Site usage statistics, the following minimum set of information shall be provided to ESA as part of the annual reports.</p> <p>User account statistics, including:</p> <ul style="list-style-type: none"> • Contact e-mail • Utilisation domain (i.e. research, commercial, education, other) • Usage field (i.e. atmosphere, emergency, marine, land, security, climate, other) • Country of the account user <p>Note: the above fields should be requested as part of the user account registration</p> <p>Data dissemination statistics, including:</p> <ul style="list-style-type: none"> • Data delivered per user account • Data volume per user account • Statistics on the core product delivered
<p>Sentinel data governance</p>	<p>Sentinel data made available via the CollDH is governed by the provisions of section 6 of the Understanding.</p>