

Annex

to the Understanding for the cooperation in the frame of the
Sentinel Collaborative Ground Segment between the European Space Agency and the Italian Space
Agency (ASI), acting in its capacity of Italy'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 ASI, acting in its capacity of Italy's National Point of Contact, of 6 October 2014, describes the technical details and specific provisions of Sentinel Collaborative Ground Segment initiatives conducted under the said Understanding.

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

Entity conducting the initiative	ASI-Agenzia Spaziale Italiana
Activity	The Participant intends to set-up a national Mirror Site for hosting and onward distributing Sentinel data acquired by the Sentinel 1A/B, 2A/B and 3 satellites. Data will have a worldwide coverage with specific areas of interest in Europe, GEO-Supersites/Geohazard Natural Laboratories, CEOS DRM Pilot Projects, CEOS-GFOI and GLAM initiative, and major volcanic sites.
ESA support	<p>a) Access to Collaborative Data Hub</p> <p>ESA grants ASI access to the Collaborative Data Hub (ColLDH), a rolling archive, providing bulk dissemination capabilities for Sentinel data products. The ColLDH will continuously store all Sentinel data acquired during the last month(s) at the processing levels agreed as part of the Sentinel core data product list and the associated timeliness as defined in the CSC Operations Concept Document [ref GMES-GSEG-EOPG-PD-12-0056]. It enables searching, browsing, previewing and downloading the Sentinel data. The time interval covered by the ColLDH rolling archive will be scalable and include at least the last month of data.</p> <p>Access to the ColLDH is allowed via a web authentication module. ESA will provide ASI with a username and password to access the ColLDH. This username and password may be used only by ASI (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>ASI 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, ASI shall not misuse or interfere with the service of the ColIDH portal. In particular, ASI 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 Letter of Understanding 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 ASI will be enabled later taking into account other users' requests.</p>
	<p>b) Data transfer</p> <p>ESA will provide appropriate interfaces, to transfer Sentinel data to ASI via internet.</p> <p>The usage of the GEANT network will be decided upon verification of the technical feasibility and the demonstration of absence of any interference with the Sentinel operations at the Copernicus Space Component Ground Segment facilities located at MATERA.</p>
<p>Time schedule</p>	<p>The ESA support 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 will initiate his operations after the release to ASI of the DHuS SW (currently planned for end of Q1 2015) and the completion of the verification activities conducted on such system installed at ASI premises (currently planned mid Q2 2015).</p> <p>The National Mirror Site will then support the National Sentinel users community access to data, in conjunction and synergy with the Collaborative X-band acquisition station (CAS) operations.</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 regarding the national mirror site 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 on the use of the Sentinel data on the national 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
Sentinel data governance	Sentinel data made available via the ColIDH is governed by the provisions of section 6 of the Understanding.

2. Collaborative X-band acquisition station (CAS) (shared visibility) at Matera

Entity conducting the initiative	ASI-Agenzia Spaziale Italiana
Activity	The Participant intends to enrich the capabilities of the national Mirror Site (CAC), with a full Sentinel Local Ground Station (LCS) operating @MATERA premises. Such station will be capable to operate in near-realtime condition for the reception of the data acquired by the Sentinel 1A/B, 2A/B, the processing into Level 1-2 products and the dissemination to the user community, thanks to a X-band antenna (for direct download during satellites overpasses), supported in a more advanced phase by a terminal of the European Data Relay Satellite System (EDRS) for complementary downlink when satellites are outside the station visibility. The same coverage and specific areas of interest described in CAC sections does also apply here.
ESA support	<p>a) Sentinel satellite downlink</p> <p>ESA will downlink Earth Observation data acquired from the Sentinel satellites to the X-band core ground stations according to the applicable pre-defined long-term observation plans. This enables ASI to acquire the downlinked Sentinel data, when the X-band Collaborative acquisition station (CAS) has visibility of the downlinking satellite.</p> <p>Outside such visibility the usage of the EDRS system with the associated complementary Sentinel 1A/B, 2A/B downlink plan is foreseen, allowing reception and dissemination of Sentinel data acquired worldwide.</p>
Time schedule	The Collaborative X-band acquisition station will initiate his full operations after the completion of the setup and verification of the Sentinel 1A/B, 2A/B Local Ground Station, planned for Q1 2017. A pre-operational phase limited to Sentinel 1A/B will be set-up for Q3 2015. The capabilities of the LGS will be later upgraded with a EDRS terminal, widening the amount and coverage of the Sentinel's data offered to the users.
Reporting	<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 regarding the collaborative X-band acquisition station shall have at least annual frequency, and shall as a minimum contain information regarding:</p> <ul style="list-style-type: none"> • Summary of Sentinel data received via the local X-band acquisition station, specified by sensed area, sensing mode, time of acquisition, data volume; • Onward-dissemination of Sentinel data, including user statistics

	<ul style="list-style-type: none"> • 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 user 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 products delivered
Sentinel data governance	Sentinel data acquired at the Collaborative X-band acquisition station is governed by the provisions of section 6 of the Understanding.