

Annex

to the Understanding for the cooperation in the frame of the
Sentinel Collaborative Ground Segment between the European Space Agency and the Finnish
Meteorological Institute, acting in its capacity of Finland'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 Finnish Meteorological Institute, acting in its capacity of Finland's National Point of Contact, which entered into force on the day of signature by both Parties, 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	Finnish Meteorological Institute Represented by Petteri Taalas
Activity	National Sentinel mirror site to disseminate Sentinels' data to National and International users, process limited area data products to national authorities and users and long-term archive of limited area data and products. The products include amongst others: water quality, snow water equivalent (SWE), fractional snow cover (FSC), etc.
ESA support	<p>a) Access to Collaborative Data Hub</p> <p>ESA grants Finnish Meteorological Institute access to the Collaborative Data Hub (ColIDH), 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 and the associated timeliness 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 Finnish Meteorological Institute with a username and password to access the ColIDH. This username and password may be used only by Finnish Meteorological Institute (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>Finnish Meteorological Institute 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, Finnish Meteorological Institute shall not misuse or interfere with the service of the ColIDH portal. In particular, Finnish Meteorological Institute 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 Finnish Meteorological Institute 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 Finnish Meteorological Institute via internet.</p> <p>GEANT is a broad bandwidth network, coordinated by DANTE, connecting European research and education institutions, which interfaces with national partner networks. In the future, data transfer may also be executed through the GEANT network, in case that both, the ESA ColIDH and the Finnish Meteorological Institute establish interfaces to the GEANT network.</p>
Time schedule	<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 start operation during 2015.</p>
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 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 of the national mirror site;

	<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 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 COLLIDH is governed by the provisions of section 6 of the Understanding.

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

Entity conducting the initiative	Finnish Meteorological Institute Represented by Petteri Taalas
Activity	<p>Local downlink of Sentinel data for NRT and Quasi-real-time applications at Sodankyla.</p> <p>The main application is provision of Sentinel-1 SAR images and derived Ice maps to Nordic (Finnish, Swedish and Estonian) ice breakers operating in Baltic Sea (Gulf of Finland, Gulf of Bothnia, Riga bay and main basin of Baltic Sea).</p>
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 Finnish Meteorological Institute to acquire the downlinked Sentinel data, when the X-band Collaborative acquisition station (CAS) has visibility of the downlinking satellite.</p>
Time schedule	Activity start: Spring 2014

	Activity duration: Long-term
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 • 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.