WP8

Management

Participant number [10]	Participant short name [11]	Person-months per participant
1	DTU	5.00
	Total	5.00

Objectives

The goal of this WP is to implement appropriate management and organizational activities to monitor the short and long term development and deployment of LOTUS. It includes:

- Day to day management of the project
- Chairing the steering committee and the advisory board consisting of one representative per partner and/or the

WP leaders and external experts respectively:

- maintain efficient management procedures to meet milestones and reporting/deliverables deadlines,
- follow Grant Agreement contracts and payment procedures and rules in consistence and cooperation with the project officers.

Tasks

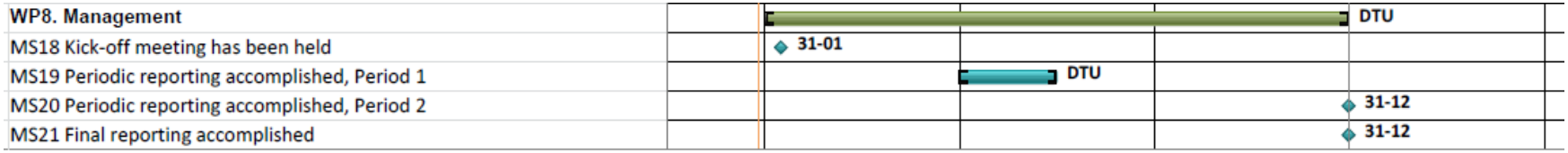
The management will be performed on a day-to-day basis and through regular meetings of the steering group via phone conferences and face-to-face meetings (~every 9 months) to address issues of relevance to the LOTUS progress.

This includes:

Task 8.1 Implement a management that maintain and capitalize on the work plan and budget in close collaboration with the partners and the project steering committee.

Task 8.2 Monitor and control the scheduling for deliverables, project meetings presentations, milestones etc.

Work plan



	Milestone number [59]	Milestone name	Lead benefi-ciary number	Delivery date from Annex I [60]	Comments
✓	MS18	Kick-off meeting has been held	1	1	
✓	MS19	Periodic reporting accomplished, Period 1	1	18	Report submitted
✓	MS20	Periodic reporting accomplished, Period 2	1	36	Report submitted
✓	MS21	Final reporting accomplished	1	36	Report submitted

Deliverables

	Delive-rable Number [61]	Deliverable Title	Lead benefi-ciary number	Estimated indicative person-months	Nature [62]	Dissemi-nation level [63]	Delivery date [64]
✓	D8.1	Project Management Plan	1	1.00	R	PU	4
✓	D8.2	Minutes of Kick-off meeting	1	0.20	R	PU	1
✓	D8.3	Minutes of project RV1	1	0.20	R	PU	10
✓	D8.4	Minutes of project RV2	1	0.20	R	PU	19
✓	D8.5	Minutes of project RV3	1	0.20	R	PU	28
	D8.6	Minutes of project RV4	1	0.20	R	PU	36
			Total	2.00			

Steering Committee

The Steering Committee (SC) of the consortium includes the coordinator and one representative from each partner. The SC will have meetings jointly with the progress meetings and, if needed, to make decision regarding scientific-technical planning and work implementation including eventually necessitating amendment of the GA with the approval of the REA , etc. The SC will make decision regarding involvement of users, IPR issues, and publication of results, as well as other dissemination activities.

Advisory board

To ensure that the developments in the LOTUS project progress consistently with the developments of the Sentinel-3 mission including data processing and data flows, an advisory board is established.

In September 2013 the Advisory Board is:

- Hans Bonekamp (EUMETSAT)
- Johnny Johannessen (MyOcean),
- Paul Bates (Uni. Bristol) and
- Giovanni Cecconi (Thetis)

In addition, Jerome Benveniste (ESA) will attend as an observer.

Representative for Copernicus Land service were contacted to obtain EEA views. (Hans Dufourmont (EEA))


SENTINEL 3


lotus

The following dissemination activities have been undertaken as part of LOTUS in order to
Particularly a public project web site where general information as well as results, demons

Developed information material describing results obtained in the LOTUS project on the u

Prepared information directed towards European SMEs to facilitate the exploitation of the

The main lines of disseminations have been
Presentations at conferences, workshops and user meetings
Presentation of results to other EU projects, international agencies and programmes relat
Publication of results in refereed journals
Throughout the project a total of 3 Review meetings where hosted in the LOTUS project to

Members of the LOTUS consortium have simultaneous been participating in other ongoing

Impact

- The LOTUS project establish a basis for the development of innovative new Copernicus products or applications based on operational space data availability from European Sentinel-3 satellites.
- LOTUS will utilise the new capabilities of the Sentinel-3 SRAL instruments and develop new products with increased resolution for both marine and land Copernicus services.
- To integrate the new products into existing operational capabilities the LOTUS project will collaborate with the MyOcean Sea-level TAC.
- Subsequently, the Sea-level TAC may provide Sentinel-3 SRAL data products for other Copernicus services as well, e.g. Geoland-2, SAFER, and G-MOSAIC.
- In addition, the LOTUS project will develop new and improved coastal oceanographic services and land services.
- A majority of the work carried out in the LOTUS project will be carried out by innovative companies.
- Finally, the LOTUS project will disseminate the results to European services and projects contributing to the Climate and Climate Change monitoring as well as to Copernicus services for security and emergency management

Impact

– **Copernicus land and ocean services**

- The LOTUS project has developed new and improved coastal oceanographic services by utilizing the new SAR data from CryoSat-2. Also, the LOTUS project has been able to develop new and improved land services by utilizing the CryoSat-2 data and find that these products can be even more prosperous when Sentinel-3 data becomes available.
- Several improvements beyond the state of the art were done during the LOTUS project, especially on L1BS/L2 pre-processing and L2 processing algorithms. New L2 products were subsequently generated as prototype products.
- It was found that SAR altimeter by itself can significantly improve the estimation of the ocean parameters (SSH, SWH…) in the coastal areas. The along-track resolution reaches values typically around 250 to 300 meters, which represents a remarkable improvement in comparison to the several kilometres currently achieved with conventional altimetry. The coastal processing of SAR waveform developed in the LOTUS project shows that SAR waveform retracking can also be improved in the across track direction using a pre-processing step that clean the waveforms from land contamination.
- LOTUS found that SAR altimetry is a huge step forward for Polar Ocean sea level products. This is particularly due to the enhancement in along track resolution (300 meters), the smaller footprint in the SAR processing, and the improved capabilities using the SAR stack information in determining the leads in the sea ice and to discriminate lead and contaminated returns.
- It was found that in order to deliver operational services in the ocean and provide useful SAR-mode products for the end-users, a structured process has to be established which consists in:
- developing a level-2P production system (including editing, filtering, geophysical correction, orbit error correction and subsampling) to prepare the generation of the level-3 along-track products for the Copernicus Marine Service (CMS)
- generating level-3 products for data assimilation systems of the CMS
- generating level-4 products for various applications (currents, Search and Rescue, and climate)
- LOTUS also demonstrated the great potential of SAR altimetry for inland water and how new improved products and services can be established.
- The use of satellite altimetry for inland water services is a new topic which becomes operational with Sentinel-3. Hence, in LOTUS we have also focus on validation and quality assurance of inland water products as this is crucial to convince the users of Earth observation data for utilization of the Sentinel-3 products on inland waters.
- Inland water, soil moisture and snow depth retrieval with SAR altimetry is under development, but compared to conventional altimetry it was found that i.e., the derived water levels for the individual crossings are significantly more stable than conventional altimetry from i.e. Envisat.
- For Soil moisture products the ESA SMALT project has already demonstrated generation of soil moisture products from satellite radar altimetry. As this methodology continues to mature and the DREAMS become more precise and encompass larger areas, operational products are foreseen. The automated processing is already well defined and it is probable that products could be operationally generated within 1-2 years of data acquisition from Sentinel-3. This allows time to rebuild the DREAMS incorporating assessment from repeat cycles of Sentinel-3 SRAL altimetry.
- LOTUS found that snow depth products from SAR altimeter is not yet mature enough to develop operational products with results based on CryoSat-2. However, this was in-part due to the annual repeat track pattern of that satellite. Similar investigations using conventional repeat track data from ENVISAT did not yield conclusive results due to the much larger footprint compared with SAR altimetry.
- For Value adding services for marine products the general conclusion from the two case studies is that high-resolution SAR data, both for sea surface elevations and for significant wave heights, provide important information for coastal processes. However, the temporal resolution of the SAR data does not, in general, allow resolving coastal processes, which in most places occur on a timescale of hours. Therefore, the fusion of satellite-based observations with numerical models is a way to utilize the synergies between the two for value adding services. The satellite-based observations provide valuable ground truth at high spatial resolution, while the numerical models are continuous in space and time and provide a supporting framework for the observations and a physically-based interpolation between the observations.
- For land applications it was found that particularly data assimilation results showed only marginal improvements in model performance from the use of Cryosat-2. One of the most important reasons for this might be the one-year repeat of the ground-tracks for Cryosat-2. Another important reason for this may be the assumption of uniform observation error for all CryoSat-2 water level data.
- The investigation found that CryoSat-2 data and particularly the upcoming Sentinel-3 data may provide key data source for water managers. The impact of the altimetry data will increase with enhanced spatio-temporal resolution available from the combination of multiple missions and with a better understanding of the error statistics of the data. The modelling and data assimilation approach developed is scalable and can be extended to other basins and to continental/global coverage for establishing operational hydrological-hydrodynamic forecast systems