



Deliverable D-22

Monthly Progress Report

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AMENDMENT HISTORY

Version	Date	Change Description	Author
1.0	09/08/11	Report August 2011 to ESA	Yvonne Gusdal

DISTRIBUTION

Name	Role	Company
Craig Donlon	Scientific Officer	ESA

EXECUTIVE SUMMARY

This is the project summary covering the progress in August 2011.

- Have collected the following for STARS-DAT: AVHRR (only 2010 – 2011).
- Applied allocations (CPU hours) for the period 2011.2 (October 1, 2011 - March 31, 2012) .
- Working on the Web-page.
- Organized an internal Kick-off meeting for phase II, in Oslo 21. September 2011

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INTRODUCTION

Purpose and Scope

This is the Progress Report for the STARS project and forms deliverable D-22 of the project documents. The purpose of the report is to provide a monthly update of the project activities and progress over each elapsed reporting period and a project plan of the activities for the following month.

This STARS progress report covers the elapsed period from 1 to 31 August. The plan summarises task of STARS Phase II (described in the Project Management Plan (D-21)), management activities, status of deliverables, milestones and travel, risk analysis, problem areas and activities to be performed in the coming months.

The next progress report is planned for 2. October 2011.

Document Structure

The information within this document is structured as follows:

- Section 1: This introduction
- Section 2: Provides an overview of the project
- Section 3: Progress, problems and forthcoming activities for all major work packages
- Section 4: A summary of the management activities addressing contractual and financial aspects, status of deliverables, milestones and travel expenditure, actions and risks

Referenced Documents

ID	Title	Reference	Version	Date
SOW	Sea Surface Temperature and Altimeter Synergy	EOP-SM/1900/CD-cd	1.0 Rev 2	23/02/2009
D-21	STARS Project Management Plan Phase II		2.2	
D-1	STARS web portal			
D-23	STARS Action Database			
D-2	STARS Literature review		1.0	14/04/2009
D-3	STARS Scientific analysis Plan		5.0	
D-4	STARS-DAT v10			

PROJECT OVERVIEW

The main objective of the STARS project is to investigate possible ocean surface warming by strong winds from polar lows using an extensive satellite data set. In the STARS project a data set will be built and used to investigate each polar low event over a ten year period.

In the original plan for phase II of STARS, a coupled atmosphere-ocean model will be designed. The purpose of the coupled system is to simulate polar low events and to investigate how the ocean and atmosphere interacts. However, due to an installation of a new super computer facility in Norway in 2011, it is considerable uncertain that the required resources are available to the STARS project in 2011/2012. The shift in computer infrastructure also ties up expert resources on the proposed atmosphere model. It will therefore be difficult to allocate the expert competence assumed available in the proposed implementation plan. The original plan for phase II of STARS is therefore altered to not implement and use the coupled STARS-MODEL.

In the second phase, we will conduct an ocean hindcast simulation with a resolution of ~800 m. The objective is to investigate with observations and numerical modeling the adjustment processes that lead to ocean re-stratification after PL events. A process that influence the net heat loss to the atmosphere.

The oceanic response to hurricanes has long been recognised (Price, 1983; Sanford et al., 1987; Brink, 1989). Strong turbulent mixing entrainment of cold waters from deep layers leads to a cooling of the sea-surface. This rapid surface cooling reduces the surface fluxes and inhibits further hurricane intensification. When hurricanes moves over deep cores of warm waters, such as the Loop Current in the Gulf of Mexico, or warm core rings this surface cooling is strongly reduced. The warm water will then act to insulate the entrainment of cold waters form even deeper layers (Hong et al., 2000; Shay et al., 2000). In such cases, strong hurricane intensification has been observed. In 2005, Katrina intensified into a category 5 hurricane as it entered the warm Gulf of Mexico (Kafatos et al., 2006).

The ocean surface warming reported by Saetra et al. (2008) has only been observed by microwave satellite data. During cold air outbreaks the ubiquitous cumulus convection prevents the sea-surface to be observed by infrared sensors (IR) such as AATSR, AVHRR and MODIS. However, verification of such ocean response to polar lows is urgent. Here, we propose to use altimeter combined with SST products from both microwave and infrared sensors to investigate possible surface warming in connection with polar lows. As the altimeter measures the surface anomaly (SLA) this can be related to the ocean heat content.

The main scientific questions to be addressed are:

- Can satellite IR observations in combination with altimeter be used to detect possible sea-surface warming caused by strong winds under polar low events?
- Can we identify a Polar Low Indicator based on satellite data that could be a useful tool for polar low forecasting?

- What are the dominant time and space scale of the ocean advection processes that govern the adjustments after PL event ?

In the second phase of STARS, an International Workshop on Polar Lows will be arranged in Oslo in 2012. The workshop aims at bringing together scientists and weather forecasters to present the results of the recent activity on polar low research, to share new knowledge and to encourage discussions on improved forecasting and understanding of polar lows

PROGRESS ON MAJOR TASKS PHASE II

Task 1: Management (Ongoing through the whole project)

Results of Reporting Period

Applied for allocations (CPU hours) for the period 2011.2 (October 1, 2011 - March 31, 2012) . Have applied for 200000 CPU hours on njord/hexagon.

Will have an internal Kick-off meeting for STARS phase II in Oslo
21.September 2011

Progress Meeting 7 in Oslo have been moved to 5 th December

Plans for Comming Reporting Period

Update the SAP after the Kick-off meting 21.September 2011.

Start planning the meeting at Svalbard

Task 7: Maintain and improve STARS web portal

Results of Reporting Period

What web-site tool is suported at metno? Will use 'wgen' ! Will not include IT or info.

Plans for Comming Reporting Period

Start building the web-site

Task 8: Extend STARS-DAT data set

Results of Reporting Period

Started gridding the NWP model runs for STARS-DAT.

Have collected the following to STARS-DAT:

- AVHRR (2005, 2010-2011), still have problems collecting AVHRR data older than 2005.
- NWP model runs (HIRLAM20km) from local archive for the period 18.03.2003 – 31.12.2005.

Birgitte Furevik have stated sending requests to ESA of archived SAR data for some Polar Low events.

Plans for Comming Reporting Period

Send registration for obtaining the requested SAR data (EOLI, ESA)

Track polar lows for the period we have access to AVHRR data.

Task 9: Impact assessment of Polar Lows

Results of Reporting Period

Non activity is reported in this period

Task 10: Polar Low Scientific Community Development

Results of Reporting Period

Non activity is reported in this period

Progress team meetings

Name	Date	Purpose
PTM1	Jul 5, 11	Progress team meeting 1 - SAR

MANAGEMENT

Invoices

Milestone	Schedule date			
		Payment	Invoice to ESA	Payment Received
ADVANCE PAYMENT: upon signature of the Contract by both Parties	September 2009	24.000	yes	yes
PROGRESS PAYMENT: Upon successful completion of phase 1 and acceptance of all related deliverables by the Agency	December 2010	96.000	yes	no
ADVANCE PAYMENT: Upon written authorization to proceed with phase 2	January 2011	16.000	yes	no
PROGRESS PAYMENT: Upon the acceptance by the agency of D-12 NS-MODEL-SAD D-13 NS-MODEL-OM D-14 TEST DATA SET	October 2011	20.000	yes	no
FINAL SETTLEMENT: Upon satisfactory completion of all obligations, including the ones relating to Appendix 5 on statement of inventions and inventory, and acceptance by ESA of all deliverables	May 2011	144.000	yes	no
Totals		300.000		

Action Database

Action Ref	Action	Actioner	Target Date	Status	Date Closed
Mid Term Review MTR-4	Review and update SAP			Ongoing	
MTR-5	Investigate the inclusion of animation of AVHRR images as part of STARS-DAT – update Phase II plan to include this task	SE			
MTR-7	Review the potential for RFI contamination of AMSRE data in Thorpex event	ØS			
MTR-8	Implement PLI in Diana for 2011/12 PL season	GN/ØS	1.October		

MTR-9	CD to organize an ESA web story on Polar Lows with STARS team in preparation for 2011/2012 PL season	CD			
MTR-11	Put a summary and link to paper on wiki	YG			
MTR-12	Send paper to Guro Dahle Strøm	YG			
MTR-13	Update phase-II plan to include steering of PL by mesoscale ocean structure	SE/ØS			
MTR-14	Clarify the model configuration to be used in Phase-II activities including the suitability of the vertical coordinate system and number of model layers in the upper 10m ocean.	PEI	After KO 21.Sep		
MTR-15	Add to SAP how to assess the PLI, implement it and communication	GN	After KO 21.Sep		
MTR-18	Discuss with KNMI access and use of OceanSat-II data for STARS-DAT.	SE			
MTR-19	Include an assessment of SOPRANO data sets for use in STARS project and plan to use in STARS-DAT if appropriate	SE			
Progress team meeting 1 PTM1-2	Send the extended polar low list to BF when ready	YG			
PTM1-3	Send BF the SAP. Include details of what will be practically done and the criteria on the decision of data and parameter from SAR	BF	After KO 21.Sep		
PTM1-5	Find out how to refer to the STARS project when ordering SAR via EOLI	SE			
PTM1-7	BF will start sending a request to ESA of archived SAR data for some events , applying EOLI	BF		Closed	
PTM1-8	Determine calibration of SAR, BEAM or self made program?	BF			
PTM1-9	Make a program in python to calculate wind from SAR with scatterometer wind direction as input	BF			

Status of Deliverables

The following contractual deliverables of Phase II have been submitted to ESA during June 2011.

Doc Ref	Doc Title	Delivery Date	Status

Each document will be submitted to ESA for approval. Upon confirmation from ESA that the deliverables are satisfactory, the status shall be updated to accepted.

Status of Milestones

Milestone meetings are planned at vital points throughout the project lifetime. The status of these meetings to date is as follows.

Name	Date	Venue	Purpose	Status
MTR Phase I	07/06/11	ESA	Mid Term Review	Completed
KO Phase II	07/06/11	ESA	Kick-off meeting Phase II	Completed
PM	05/12/11	Met.no	Progress meeting	Not Completed
PM	22/03/12	Svalbard	Progress meeting	Not Completed
PM	01/10/12	Met.no	Progress meeting	Not Completed
FM	05/12/12	ESA	Final Meeting	Not Completed

Status of Travel Expenditure

Non Travel Expenditure in July

Risk Analysis

The table below shows the most probable risks and issues identified to date.

ID	Type	Risk title and Description	Probability	Impact	Duration	Mitigation Strategy
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