

**Call for Proposals under the IMOS (EIF) Five Year Strategy:
Enhancement or extension of IMOS – July 2009 to June 2013**

Facility Project Plan template

Proposals should be submitted by 30 October 2009 to:
Tim Moltmann, IMOS Director, University of Tasmania
email: tim.moltmann@imos.org.au

Background:

This template has been provided to allow Facility and Sub-Facility Leaders, and other interested parties to prepare a Facility Project Plan following a call for proposals announced on 18 September 2009, with a closing date of 30 October 2009.

Prior to completing this template, please read the IMOS Five Year Strategy (the 'Strategy'), and Detailed Guidelines for Proposal Development (the 'Guidelines') – see the IMOS website at: <http://imos.org.au/eif.html>.

The Facility Project Plan must be in the following template and contain the information set out below:

Overview:

Proposed Infrastructure Investment:	Maintain the SOOP ship flux facility and 2-ship expansion
IMOS Facility:	Facility SOOP Subfacility: Ship flux
Operating Institution:	BOM
Facility Leader (for this Proposal):	Facility leader Ken Ridgway Sub-facility leader: Eric Schulz, BOM, 03 96694618, e.schulz@bom.gov.au
Other(s) key people involved:	
Collaborating Institutions:	MNF AAD

Please attach:

- Letter from senior person in Operating Institution, confirming that the proposed infrastructure can be developed and operated within that institution
- Resume of Facility Leader
- Letters received from Collaborating Institutions, detailing their support to the Proposal, and indicative level of co-investment

Nature of Investment:

Currently this IMOS facility has two research vessels; the Marine National Facility research vessel Southern Surveyor (SS) and the Australian Antarctic Division resupply and research vessel Aurora Australis (AA) routinely measuring while at sea all the meteorological observations (wind, air and sea temperature, humidity, pressure, precipitation, long- and short-wave radiation) required to estimate bulk air-sea fluxes of momentum, heat and mass. Data is telemetered via satellite link every 3 hours to the Bureau where it is automatically quality controlled. Bulk fluxes are calculated every day. The meteorological observations and derived bulk fluxes are archived at the Bureau and sent to eMII. Meteorological observations from the SS are also put onto the GTS as the contribution to the Australian Volunteer Observing Fleet.

The proposal is to extending operation of the SS and AA beyond June 2011 by two years to June 2013; and to enhance the subfacility by recruiting two other vessels into the facility by installing new autonomous weather stations (AWS) on a vessel in the Southern Ocean and one operating in tropical waters. One of the targeted vessels is the L' Astrolabe. The other vessel could be one operating in Australia's northern waters or traversing the Tasman Sea.

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Implementation Strategy:

• Summary

The current vessels (SS &AA) will be maintained for the additional 2 years July 2011 – June 2013.

The major cost associated with this is 0.5 staff to manage the data OC, product generation and metadata. A minor upgrade will be undertaken on the SS with an additional temperature/humidity sensor added to the foremast to complete the suite of sensors in this optimally exposed position.

A new AWS system, capable of achieving the level of accuracy needed for climate quality observations will be designed by the experienced observations and engineering teams at the Bureau. Three systems will be procured, and deployed on two vessels (with one system spare for maintenance swap out). The new data-streams will be managed by the existing system and staff.

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• Objectives

- In outlining the objectives of the Facility please refer to the IMOS Five Year Strategy, and in particular the Strategic Priorities on
 - Providing a national backbone for observing boundary currents
 - Continuing to build institutional strengths into national capability
 - Exploring the potential for whole-of-system approaches
 - Driving down the cost per observation

The primary objective is to obtain meteorological observations of sufficient accuracy to enable the calculation of climate quality air-sea fluxes of heat, mass and momentum.

Where practical, the aim is to use vessels that are collecting additional multi-disciplinary observations such as sea salinity, XBT, CO2 and plankton, and biogeochemical samples. L' Astrolabe is the best example of this approach.

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• List of major activities – including major party(s) involved, duration, start, finish

Purchase temperature/humidity instrument, install on SS foremast and integrate into ship data management system July 2010-June 2011. MNF

Continue running existing systems on SS and AA, including data management July 2011-June 2013. MNF, AA, BOM

Design specification for AWS, tender, select sub-contractor, receive systems, test and install. July 2010-June 2011. BOM

Run 2 AWS systems with routine inspections, maintenance, calibrations and data management. July 2011-June 2013. BOM

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- List of major equipment to be purchased / developed
The minor instrument upgrade to the SS will be a robust, standard off-the-shelf marine research grade instrument, such as the systems currently deployed on the SS and AA.

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The AWS will be developed by the Bureau which has extensive experience with previous AWS systems deployed on ships of opportunity. The AWS are self contained units with satellite telemetry, position and motion systems built in to enable simple installation on merchant vessels. The AWS has a flexible architecture to allow a range of meteorological instruments to be added with minimal additional work, and high data sampling, storage and transmission rates to meet IMOS requirements. The AWS instruments will be robust, standard off-the-shelf marine research grade instrument, such as the systems currently deployed on the SS and AA

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Access, pricing regimes:

- How will data access be provided?
- Data will be provided on-line, free of charge, via the IMOS and EMII servers, the GTS, and contributed to the USA based SAMOS project
- How will data and products be managed?
- Initial data handling and Qc will occur at the Bureau.
- Data will be also be managed by EMII and SAMOS after provision to those bodies.
- What are the dependencies on external / other facilities (national and international)?
- Main dependency is on ship time at sea and ship routing – this is integral to the concept of a ship of opportunity program.
- Collaborative structures for allocation of priorities
- Priority allocation has been primarily set by the P.I.s via informal consultation with international research collaborators and via discussions with the IMOS Bluewater and Climate Node. Logistics are a significant factor in where data is collected.

Governance

- Performance indicators
Timely provision of quality controlled observations – daily for telemetered meteorological observations,
- Describe key risks and risk management strategies
- For existing Facilities, respond to any issues raised in the 2008 IMOS Review

Budget: Please complete the spreadsheet provided, and detail here any further information you have available on the background to the Budget:

- EIF Funds
 - Extension of existing Facility
All EIF funds are to maintain the existing facility out to June 2013 with minor enhancement of the current meteorological sensors, and to ~~enhance~~ the facility by expanding the fleet by two vessels. The specification, procurement and testing of the AWS systems will be managed by the BOM observations and engineering section.
 - Expansion of existing Facility / New Facility
- Co-investments – source and nature
Co-investments are from BOM:
 - 0.15 fte facility management and science oversight (E. Schulz)
 - 0.25 fte (1st year) for design and tendering
 - \$25K cash for design tendering

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- 4 days per ship per year for calibration, inspection, routine maintenance, routine QC and management overhead = 8 days pa.

- Staffing details

The sub-facility is requesting 0.5fte (2 years) to continue the real-time data management and QC (Ruslan Verein) and 0.5fte (1st year only) for AWS design build and test.

- Description of proposed new infrastructure for Nodes – please complete the Table on the next page, referring to Attachment 1 to the Guidelines for further information

TABLE: Observations required by the Nodes in relation to this Facility

Facility	Observations required by the Node			
	NCRIS Funded (already allocated to Jun11)	EIF first \$8M funded (already allocated to Jun10)	Extension of existing facility infrastructure out to 2013.	Enhancements of existing Facilities / new infrastructure required 2010-2013
	(see Appendix 1 of the Guidelines)			
Bluewater & Climate	Air-sea fluxes on SOOP – 2 research vessels		Continuing observations on the existing vessels and expanding by two vessels in the Southern Ocean and northern Australia	
WAIMOS				
GBROOS				
NSW-IMOS				
SAIMOS				
Other <enter name>				