SOOPIP update

(Ship Of Opportunity Implementation Panel)

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Outline

- Overview
  - What is SOOPIP
  - Members
- Refreshing SOOPIP
  - JCOMMOPS Metadata review
  - OCG review, XBT network review

What is SOOPIP?

The Ship-of-Opportunity Implementation Panel (SOOPIP) coordinates the installation and deployment of instrumentation from Ships of Opportunity that travel in fixed transects, and in particular coordinates the implementation of regional and basin-wide instrumentation that measure physical, chemical and biological parameters, such as XBTs, TSGs, and CPR.


DBCP
Drifters, moorings
(high seas/tropical),
arctic buoys & tsunameters
Argo
Profiling floats
GO-SHIP
Sustained
hydrographic sections
jcommops
SOT
■ VOS : meteorological
observations from ships
■ SOOP : XBTs and TSG
■ ASAP : atmospheric
sounding from ships
OceanSITES
Deep ocean time series
reference stations using
moorings & cables
IX1
IX06

Members of SOOPIP

- Australia
  - CSIRO, BOM, RAN
- Japan
  - JMA, Tohoku University
- France
  - CRNS
- Italy
  - ENEA
- USA
  - AOML, Scripps, WHOI, NFMS(?)
- Brazil
  - FURG
- South Africa
  - UCT
- AX90 – USA?
  - URI/SBU?

Metadata requirements

- JCOMMOPs are completing a review of XBT metadata submitted yearly.
- Aim to make the information useful for assessing network capacities, future implementation of the network and implementation of other networks.
- Platform and Cruise metadata can be entered via an online form at JCOMMOPS.

http://www.jcommops.org/board?t=SOT

New Metadata requirements

- Platform metadata
- Cruise metadata
- Delayed mode deployment metadata

Mandatory fields:

- Line number (e.g. AX01)
- Operator Cruise ID
- JCOMMOPS Cruise ID (assigned by JCOMMOPS)
- Date (YYYYMMDD)
- Time (HHMM)
- GTS Platform ID
- JCOMMOPS Platform ID
- Latitude (in decimal degrees, N>0, S<0)
- Longitude (in decimal degrees, E>0, W<0)
- Deployment height
- Instrument type (WMO code table 0 22 067)
- Software / version
- Probe serial number
- Probe batch date (date of manufacture, YYYYMMDD)
- Metadata format version

Optional fields:

- Drop number
- Quality flag (‘good’ if there is any good data in the profile, ‘bad’ if the entire profile fails)
- Total depth
- Comment (text)

OCG (Observations Coordination Group)

- OCG-7 was held in April, Spain.
- Global observations are being reviewed and the OCG will make recommendations to JCOMM about requirements for the global observing system.
- Each observation group provided information via Network Specifications sheet.
- WE need to reassess the XBT network – scientific need, ability to maintain the line.

SOOP XBT

An eXpendable BathyThermograph (XBT) is a probe that is dropped from a ship and measures the temperature as it falls through the water. The core XBT mission is to obtain multi-decadal upper ocean temperature profile data along specific transects. The XBT observations constitute a large fraction of the archived ocean thermal data between 1970-1992. Until the full implementation of the Argo array, XBTs constituted 50% of the global ocean thermal observations, providing sampling initially during regional research cruises and later along major shipping lines with a broad spatial sampling strategy. Currently, XBT observations represent approximately 15% of current temperature profile observations and are used to monitor boundary currents and are the main practical system for monitoring transports across fixed transects, some of which now have 30 year time-series.

XBT observations are complementary to other ocean observation systems and transect are maintained in locations that maximise the scientific value of the observations. The typical sampling depth of XBTs is of 800m. Fixed transect (30-35) are maintained by the scientific community in either High Density and Frequently Repeated modes. High Density transects (occupied at least 4 times per year, approximately 25 km intervals along the ship track), enable the calculation of heat and mass fluxes of boundary currents and the closing of heat and mass budgets of ocean basins. Frequently repeated transects (12-18 times per year, 100-150 km intervals) are positioned in areas of high temporal variability and enable studies of long-term means, seasonal cycles and large-scale ocean circulation.

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Action O38: Sustain Ship-of-Opportunity XBT/XCTD

Action	Sustain the existing multi-decadal Ship-of-Opportunity XBT/XCTD transoceanic network in areas of significant scientific value.
Benefit	Eddy resolving transects of major Ocean basins, enabling basin scale heat fluxes to be estimated, and forming a global underpinning boundary current observing system.
Timeframe	Continuous.
Who	Parties' national agencies, coordinated through the Ship Observations Team of JCOMM.
Performance Indicator	Data submitted to archive. Percentage coverage of the sections.
Annual Cost	1-10M US$

What is transect data used for?

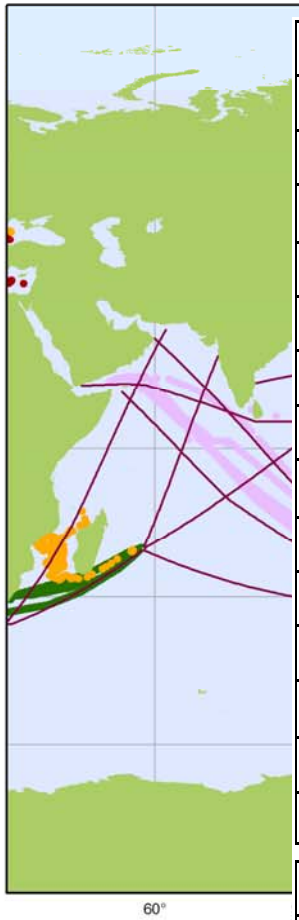
- monitoring of boundary currents, ocean interior mass and heat transports across fixed transects
- studies of long–term means, seasonal cycles, and inter–annual fluctuations of temperature, geostrophic velocity and large–scale ocean circulation in the top 800 m of the ocean
- contributing observations for seasonal to multidecadal variability assessments in upper ocean temperature and heat content
- collecting data for testing and validating ocean models and assimilation into general ocean circulation models for climate prediction
- large–scale thermal structure studies (in conjunction with other programs such as Argo)

How to review the SOOP network?

We are working on a community paper – Gustavo is lead.

Part of the review requires us to look more closely at the network.

Now for some work…..

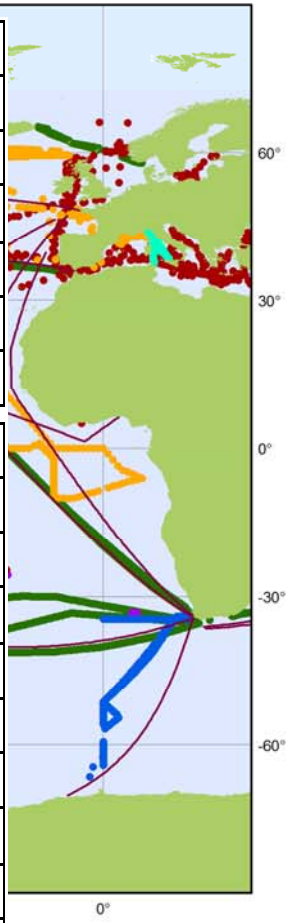


Transect	Country	Mode	Year
AX01	1, 3	HD	1997
AX02	1, 3	HD	2008
AX03	5, 12	FR	1989
AX07	1	HD	1995
AX08	1, 7	HD	2000
AX10	1	HD	1997
AX11	5	FR	1990
AX18	1, 8, 7	HD	2002
AX20	3, 1	HD	1995
AX22	1, 8	HD	1996
AX25	1, 7	HD	2004
AX32	1	HD	1981
AX90	1	HD	2013
AX97	1, 10	HD	2004

Transect	Country	Mode	Year
MX01	4, 1	HD	1999
MX02	4, 1	HD	1999
MX04	4, 1	HD	1999

Transect	Country	Mode	Year
IX01	2, 1	FR / HD	1983
IX12	2, 1	FR	1986
IX15	1, 2, 7	HD	1994
IX21	1, 2, 7	HD	1994
IX22	2	FR	1986
IX28	2, 1	HD	1993

Transect	Country	Mode	Year
PX02	2	FR	1983
PX05	1, 3	HD	2009
PX06	1, 3	HD	1986
PX09	1	FR / HD	1987
PX11	2	FR	1986
PX30	2, 1, 3	HD	1991
PX31	1, 3	HD	1986
PX34	2, 1	HD	1991
PX37	1	HD	1991
PX38	1	HD	1993
PX39	1	HD	1986
PX40	6, 1	HD	1998
PX44	1	HD	1991



Ship Observations

2015

XBT Reference Line

Generated by www.jcommops.org

Future work?

- XBT transect product for data assimilation, other research
  - Scripps?
  - Anyone else?