



SCICEX Phase 2



Science Advisory Committee Meeting
14&15 February 2012

AGENDA

Thursday, 14 Feb

Morning:

- State of SCICEX
- 2011 SCICEX data: Status
- SCICEX support requirement: Outline template

Afternoon:

- SCICEX support requirement: Working session

Friday, 15 Feb

Morning:

- ICEX2014: Planning ahead
- SCICEX: Increasing opportunities, awareness and usage



US Submarine Arctic Science Program *SCICEX*

“The overall goal of SCICEX is to improve understanding of Arctic Ocean processes and their role in the Earth’s climate system by dual use of nuclear submarines, thus fully capitalizing on existing national platform capabilities. This Agreement is intended to mutually support the objectives of both the civilian and military communities.”



SCICEX

- Unique program
- Key insights on characteristics of Arctic Ocean
 - Seafloor
 - Ocean
 - Ice cover
- Region remains of high interest
 - Bellwether of climate change
 - Increased commercial activity
 - Increased operational activity
- Strong motivation to maximize utilization of SCICEX agreement



SCICEX

Twist: Transition, in 1998, from dedicated to accommodation cruise (SAM)

SAM: SCICEX data collected during a classified mission

Challenge: Little to no advance opportunity for planning

Solution: Scientifically endorsed planning matrix (aka SCICEX Science Plan)



SCICEX Phase 2

Accommodation Cruises

SAM IMPLEMENTATION

Navy's Arctic Submarine Laboratory will examine each cruise for its potential to collect SCICEX data

Consider (among others):

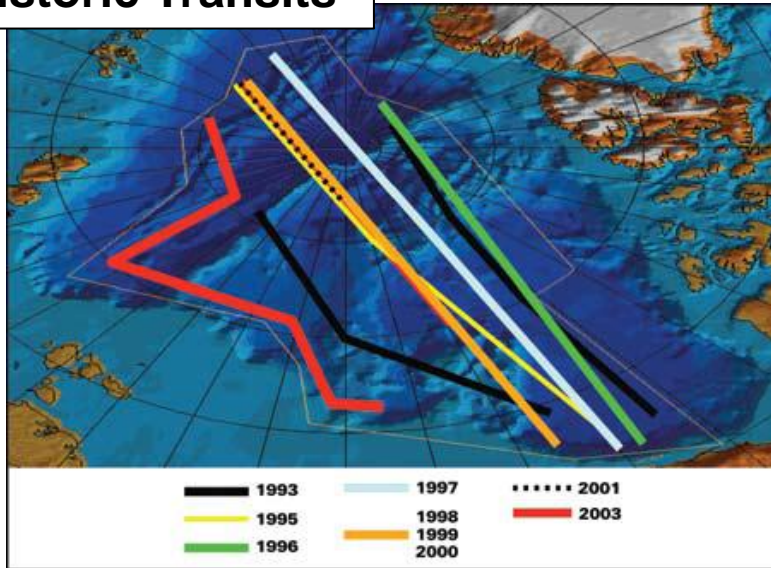
- Type/destination of the transit
- Science Plan priorities
- Equipment available on sub
- Possible additional time
- Time of year
- Complementary AON plans



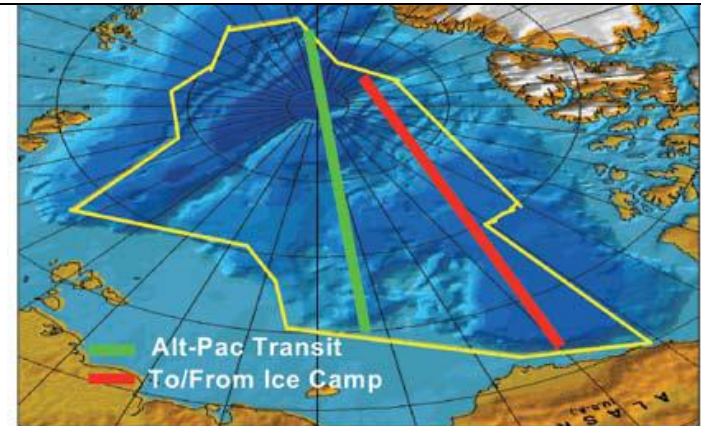
SCICEX Science Plan

Recommended Transits

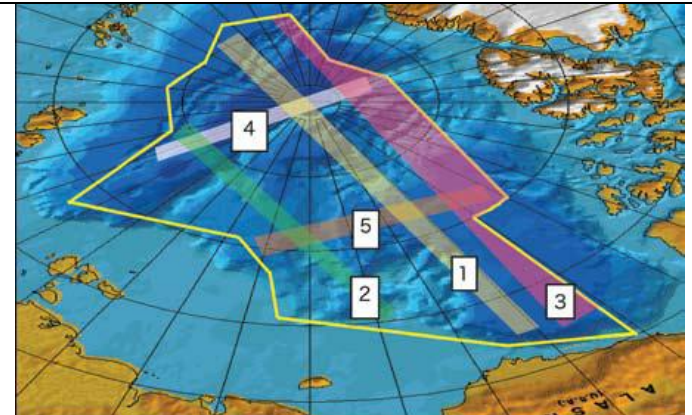
Historic Transits



Baseline: Direct Transits (0-1.5day)



Augmented:
Sampling Corridors (1-3 days)



SCICEX Science Plan: Top Recommendation

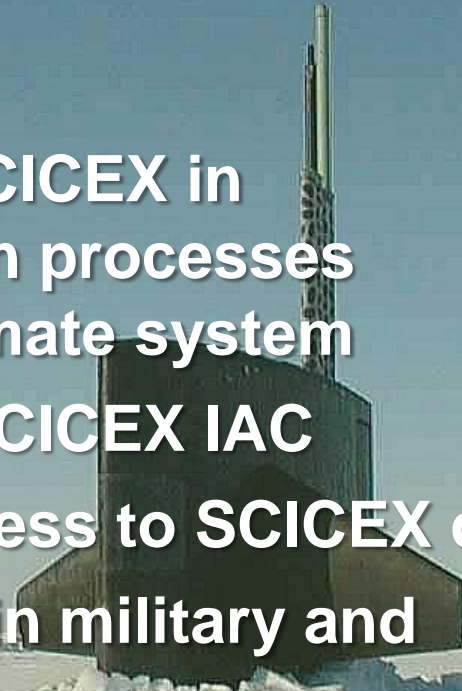
‘The routine collection of SCICEX data during direct submarine transits and in support of ice camp exercises is strongly encouraged, as past and recent experience has shown the value of virtually all of the historic submarine-based data.’

SCICEX

SCICEX Science Advisory Committee

OBJECTIVES

- Maximize the contribution of SCICEX in understanding the Arctic Ocean processes and their role in the Earth's climate system
- Provide guidance to ASL and SCICEX IAC
- Promote timely community access to SCICEX data
- Promote SCICEX program within military and scientific communities
- Support develop of plan for sustaining SCICEX, including the collection and dissemination of data



SCICEX Phase 2

Accommodation Cruises

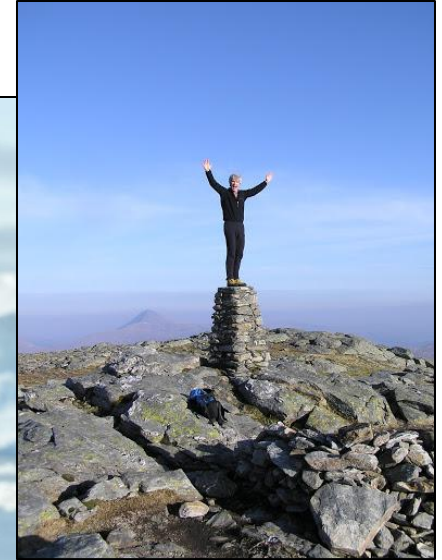
State of SCICEX

- SAC (Richter-Menge)
- IAC (Jeffries)
- ASL (Gossett)
- NSIDC (Fetterer)



Remembering Tim Boyd

High on Life!



<http://tim-boyd.tumblr.com/>

Jackie Richter-Menge
Chair SCICEX Science Advisory Committee

13 February 2013

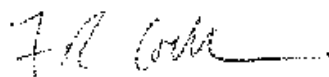
Dear SCICEX Science Advisory Committee

I am aware that you are gathering this week for your annual meeting. I am also aware that you will be feeling a strong sense of loss following the tragic death of our colleague and friend, Tim Boyd. It will be difficult for you sensing the empty space in the room that Tim would have filled and the energy that he would have injected. So I would like to extend the thoughts and mutual support of the staff in the Physics, Sea Ice and Technology Department at SAMS to you all.

SCICEX was an initiative that gave Tim a lot of pleasure and he was utterly committed to it and its objectives. He had carved out a hugely exciting and valuable niche for himself as he acted as the science link between the UK and the US navies. Tim was one of the few people who could sustain the respect of both of these organisations to the benefit of science. We are all stumbling about at the moment, picking up the pieces and discovering how big a gap Tim has left in our personal and professional lives. The SCICEX SAC will be no different. For such a modest, unassuming man the gap he leaves within SAMS is wide and deep and growing by the day. It is with some frustration and disappointment that I and others only realise it after he has gone.

We held a wonderful service of celebration in Oban last week for Tim where we recalled all the happy times we had with him. I urge you to also spend part of your meeting reminiscing, laughing and probably shedding the odd tear or two. I, on behalf of SAMS, would like to wish you all the resilience to face the loss of Tim from your group, but also to celebrate his contribution, and to wish you well in the future of SCICEX.

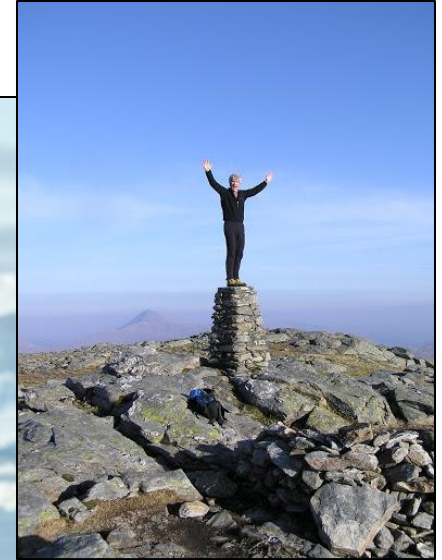
Kind regards



Finlo Cottier
Head of the Physics, Sea Ice and Technology Department

Remembering Tim Boyd

High on Life!



<http://tim-boyd.tumblr.com/>

SCICEX Phase 2

State of SCICEX

SAC Report: Progress

- **New SAC members:**
 - Larry Mayer, UNH: Bathymetry
 - Walt Meier, NSIDC: Sea Ice
- **SCICEX resource support**
 - USARC: Logistic support for SAC
 - ONR:
 - Research project support
 - NSIDC website
 - USN: ASL support



SCICEX Phase 2

State of SCICEX

SAC Report: Progress

- Data management: Current set up working well
 - NSIDC:
 - Data archive & host SCICEX website
 - Adapt R2R product for sub data
 - ICEX2011: First SAM since 2005
 - Data has yet to be posted on NSIDC website
 - SCICEX Data collection: Future opportunities
 - ICEX2014
 - Opportunity to plan ahead
 - Apply lessons learned from ICEX2011: Communication is THE key
- 

SCICEX Phase 2

State of SCICEX

SAC Report: Progress

- Promoting value

- USN

- USARC letter to RADM Bruner (2/10/12)
 - ONR Flag Brief (Jeffries)
 - Opportunity with RADM Klunder?

- Science community

- NASA IceBridge meeting: Sub data complements satellite and airborne data
 - Arctic Observing Summit 2013, Vancouver, 30 April – 2 May: Boyd preparing white paper (input due 28 Feb)

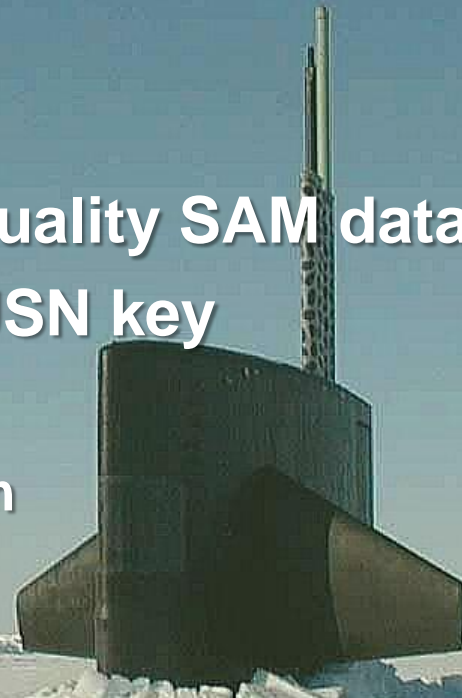


SCICEX Phase 2

State of SCICEX

SAC Report: Concerns

- Overall: “Use it or lose it”
- Demonstrate rapid access to quality SAM data
- Engaging operational side of USN key
 - Demonstrating value of program
 - Safety and efficiency of operation
 - Rapidly changing environment
 - Increased presence
 - US Operations: Subs (+) , surface ships (-)
- SAMS opportunities outside of ice camps
- Resources: Tightening of ASL budget; ICEX program



SCICEX Phase 2

State of SCICEX

SAC Report: Concerns

- Running a non-PI driving data collection program
- Requires sustained support for:
 - Basic equipment and lab work
 - Data transfer and derived products
 - Data archive
 - Web site



SCICEX Phase 2

Accommodation Cruises

State of SCICEX

- SAC (Richter-Menge)
- IAC (Jeffries)
- ASL (Gossett)
- NSIDC (Fetterer)



SCICEX Support Requirements

Objective:

Outlining the needs associated with the routine collection, processing, delivery and distribution of SCICEX data products

Derived products:

- Navigation**
- Ice draft**
- CTD**
- XCTD**
- Bathymetry**
- Water samples**
 - Chemistry**
 - Biology**

SCICEX Support Requirements

SCICEX boat-to-archive route map: Major steps

Step -1. TEMPALT (if necessary)

Step 0. Prep for SCICEX data collection opportunity

- **Calibration**
- **Training**
- **TEMPALT delivery and installation**
- **Etc.**

Step 1. Collection of data/samples on the submarine

- **Descriptive data taken onboard**
- **Log sheet**

Step 2. Transfer of data/samples from submarine to ASL

Step 2a. Assign classification level

Step 2b. Raw, unclassified data to NSIDC

Step 3. Transfer of data/samples from ASL to lab for processing

Step 4. Data/sample processing and QA/QC

Step 5. Transition to archive

Step 6. Alerting community regarding availability

SCICEX Support Requirements

SCICEX Product: (name)

Step x:

Brief summary:

Resource requirements :

- **Facilities**
- **Hardware**
- **Personnel**
- **Costs**

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Science Advisory Committee Meeting

14 & 15 February 2013

Day 1

State of SCICEX

- Overall: 'Use Collect it or lose it'
- Broad evidence of user support
 - Satellite validation
 - Bathy
 - AON/SAON networks
- Opportunity to increase USN support
 - Jeffries to brief Oceanographer of Navy, with TFCC
 - Identify key personnel within OSD
 - Responsible for tasking operational USN
 - Utilizing existing resource to achieve objectives
 - Target future requirements
 - Engage more directly with user



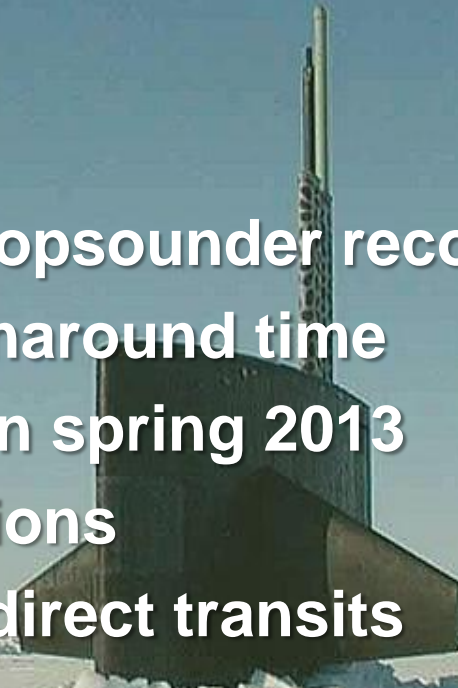
Science Advisory Committee Meeting

14 & 15 February 2013

Day 1

State of SCICEX

- ONR award for new digital topsounder recorder
 - Potential to improve turnaround time
- Agree to hold IAC meeting in spring 2013
 - Classified-level discussions
 - Support for SCICEX on direct transits
- Historic data
 - Actions to continue recovery
 - Find and include cruise summaries
 - Close to completion



Science Advisory Committee Meeting

14 & 15 February 2013

Day 1

SCICEX 2011

- Raw data headed to NSIDC
- Added description of topsounder data
- Move water sample and XCTD data towards NSIDC
- Engage Mark W. on topsounder data
- CTD data: Engage Robin Muench

SCICEX Resource Requirements

- Good progress in developing summary
- Send summaries to JR-M