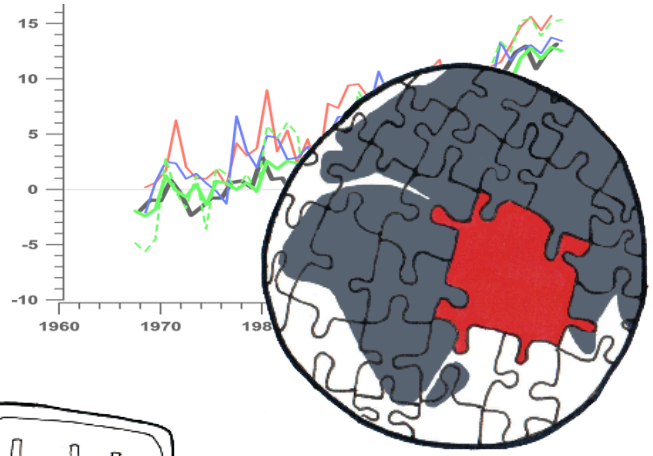
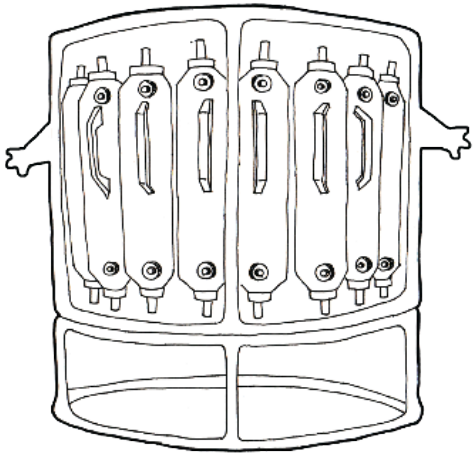
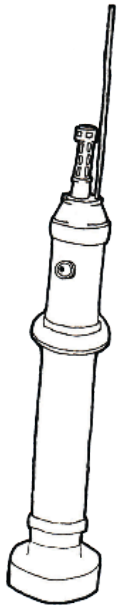
Argo's CTD Reference Dataset: An Update

S. Diggs (CCHDO), T. Boyer (US-NODC)

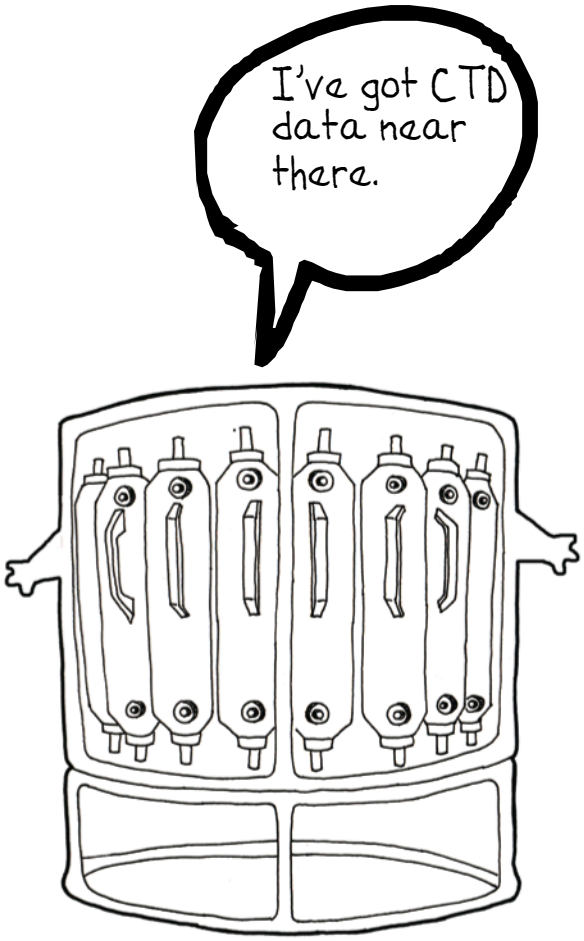


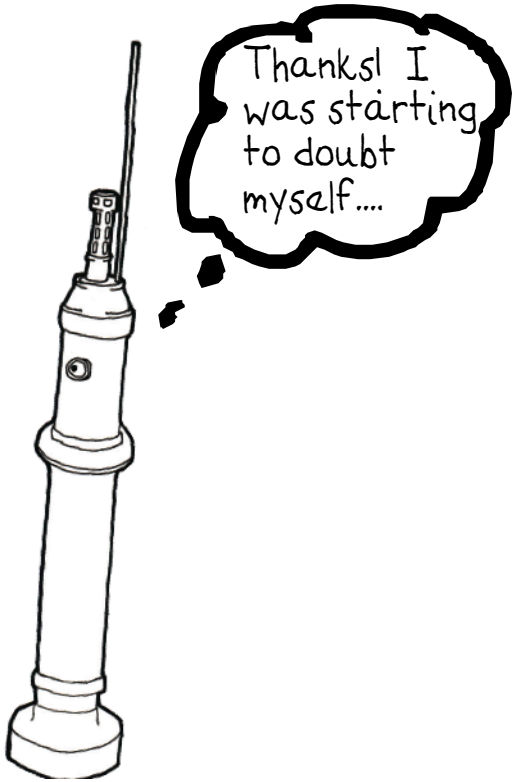




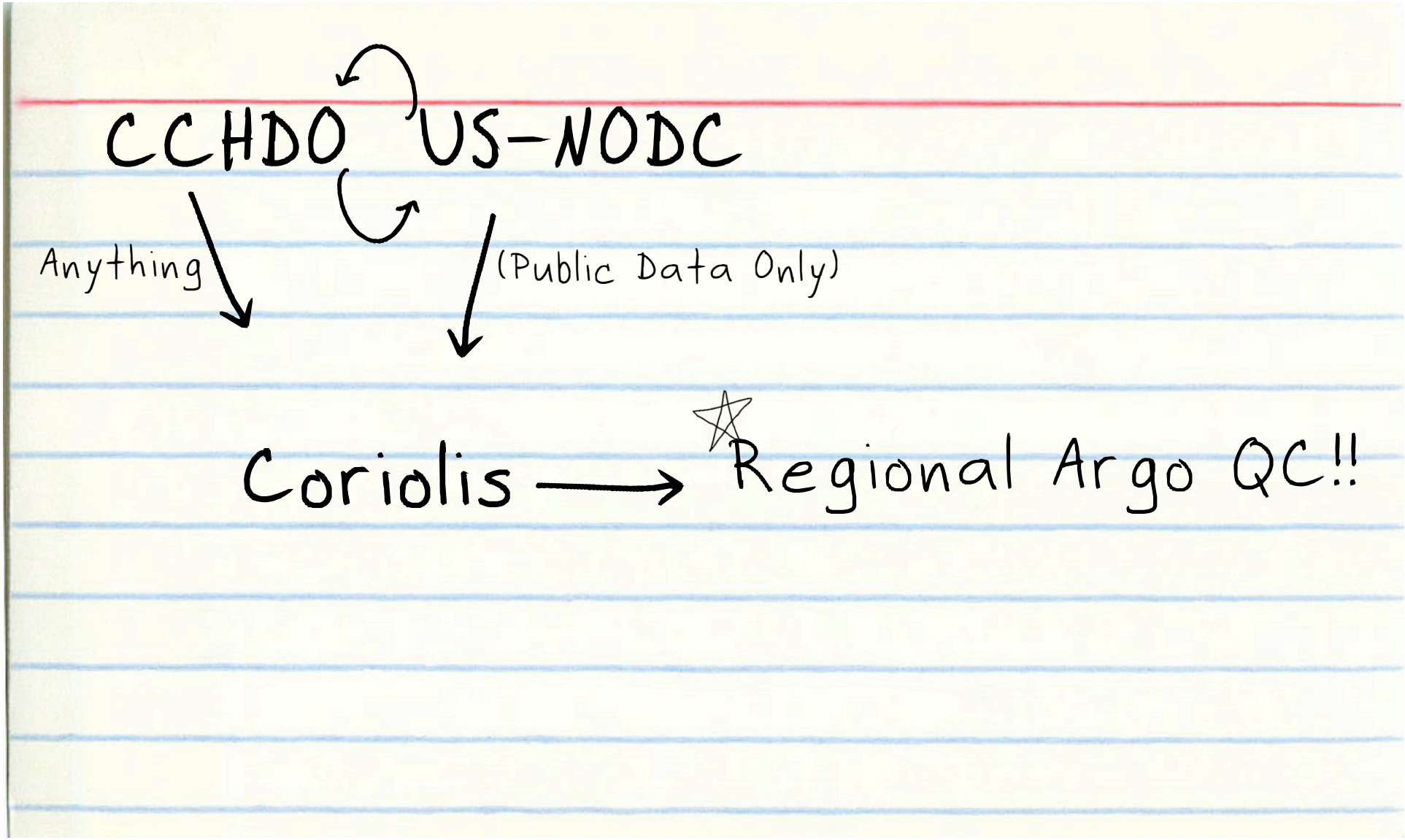
14th Argo Steering Team Meeting
19 - 21 March 2013, Wellington, New Zealand

The Argo CTD RefDB and DMQC

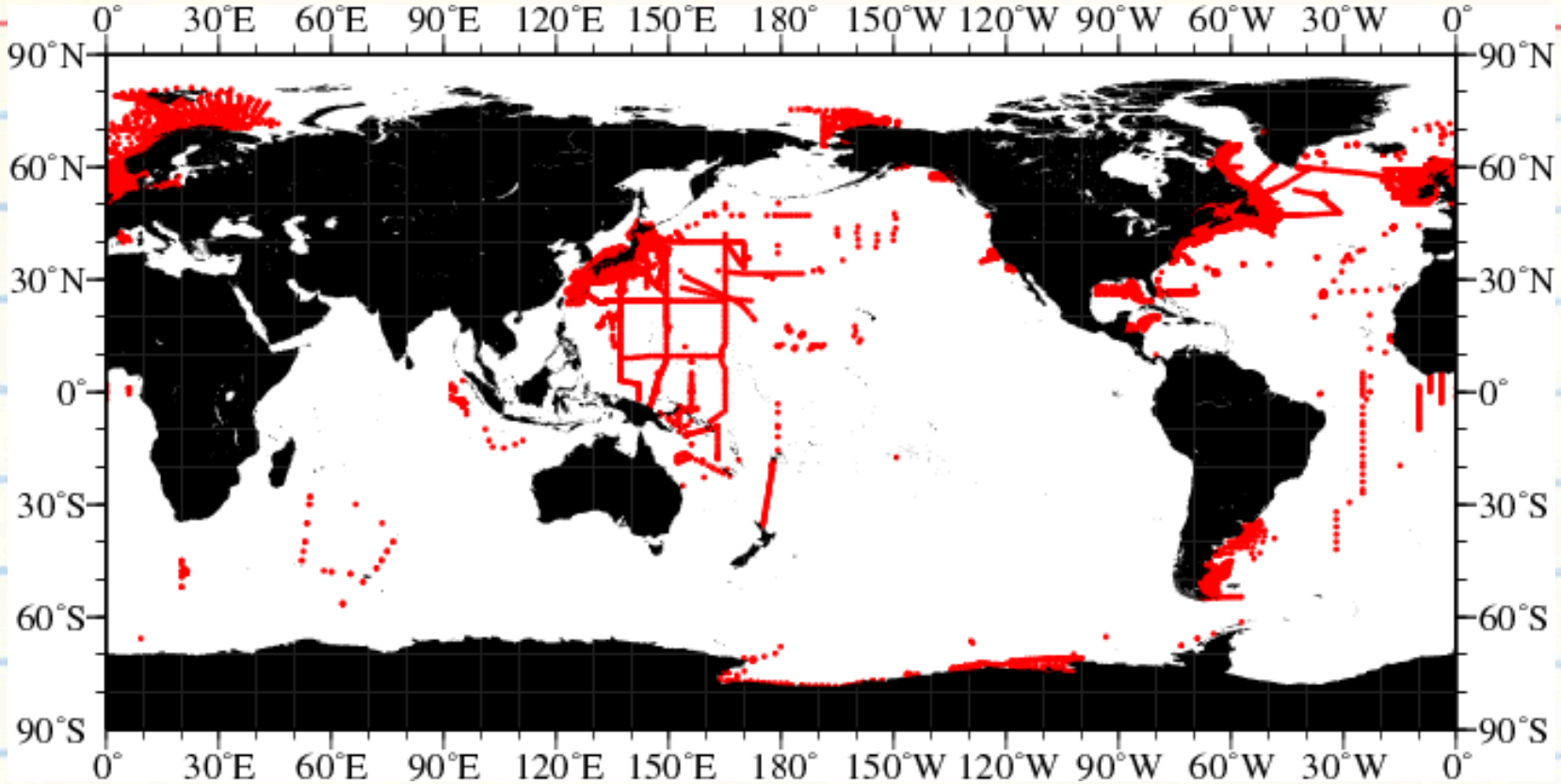




How it Works

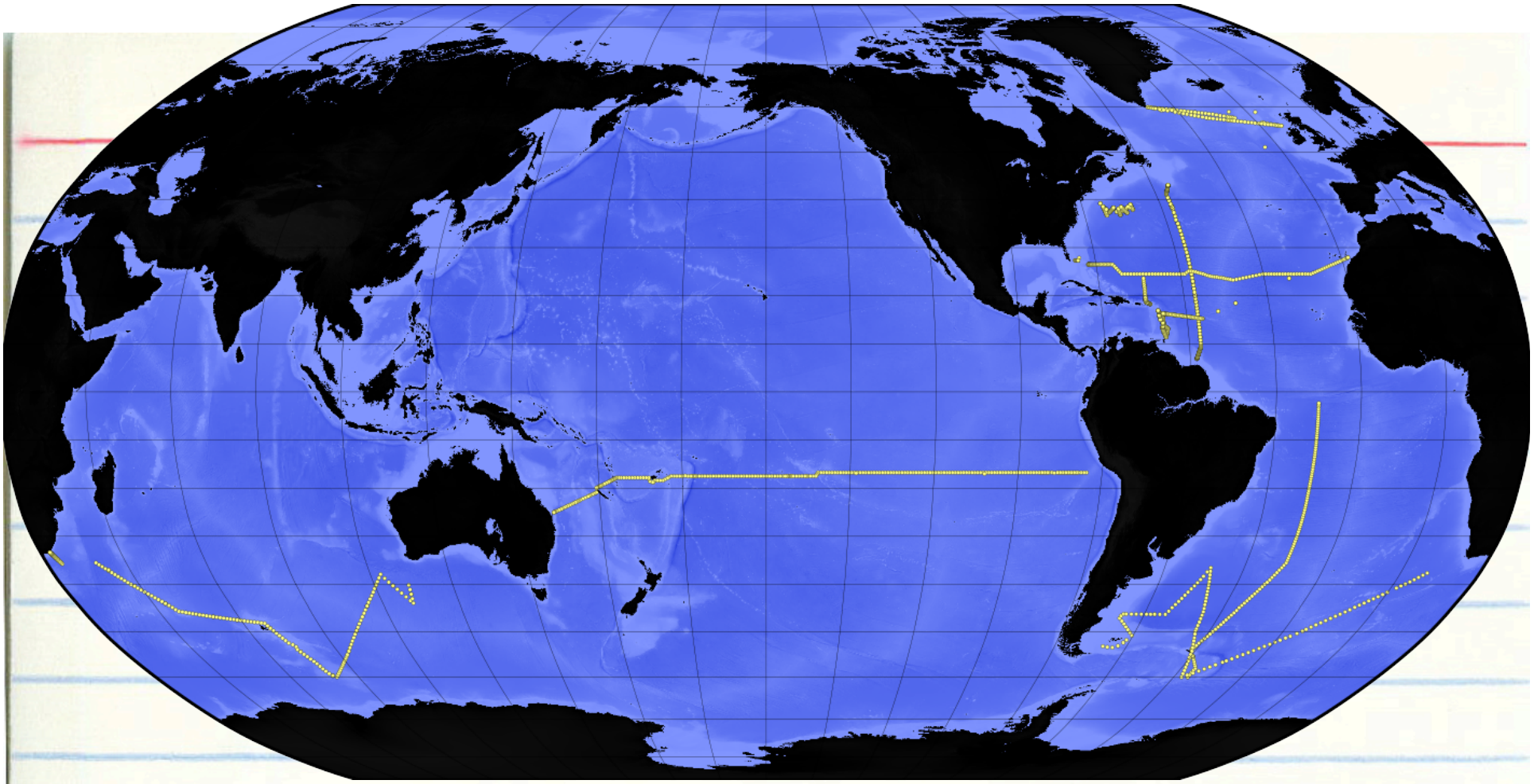

CCHDO
US-NODC
Anything
(Public Data Only)
Coriolis
Regional Argo QC!!

– Since last time



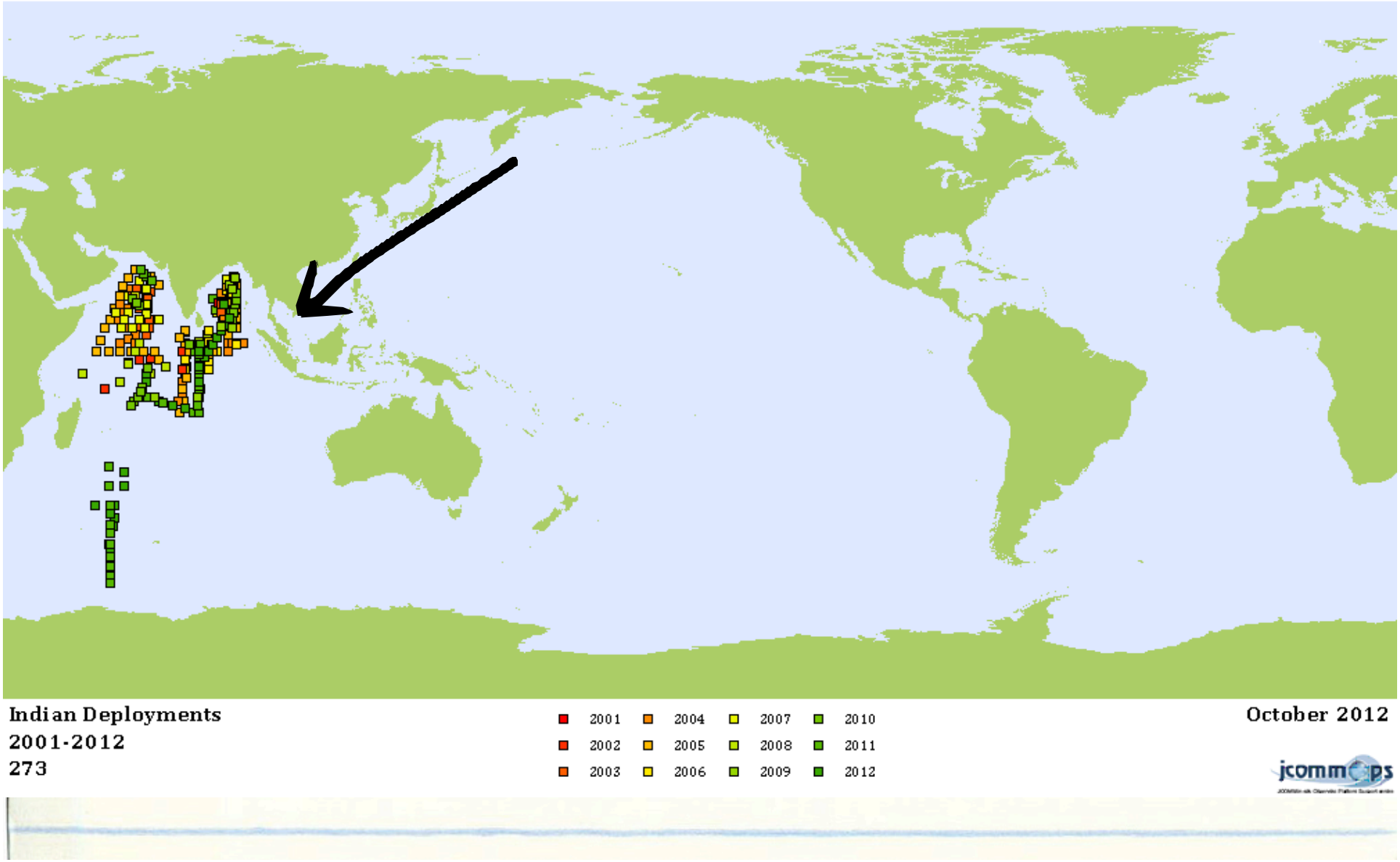
<u>NODC</u>: 20,721 high-resolution CTD casts added since ADMT-12 meeting

CCHDO

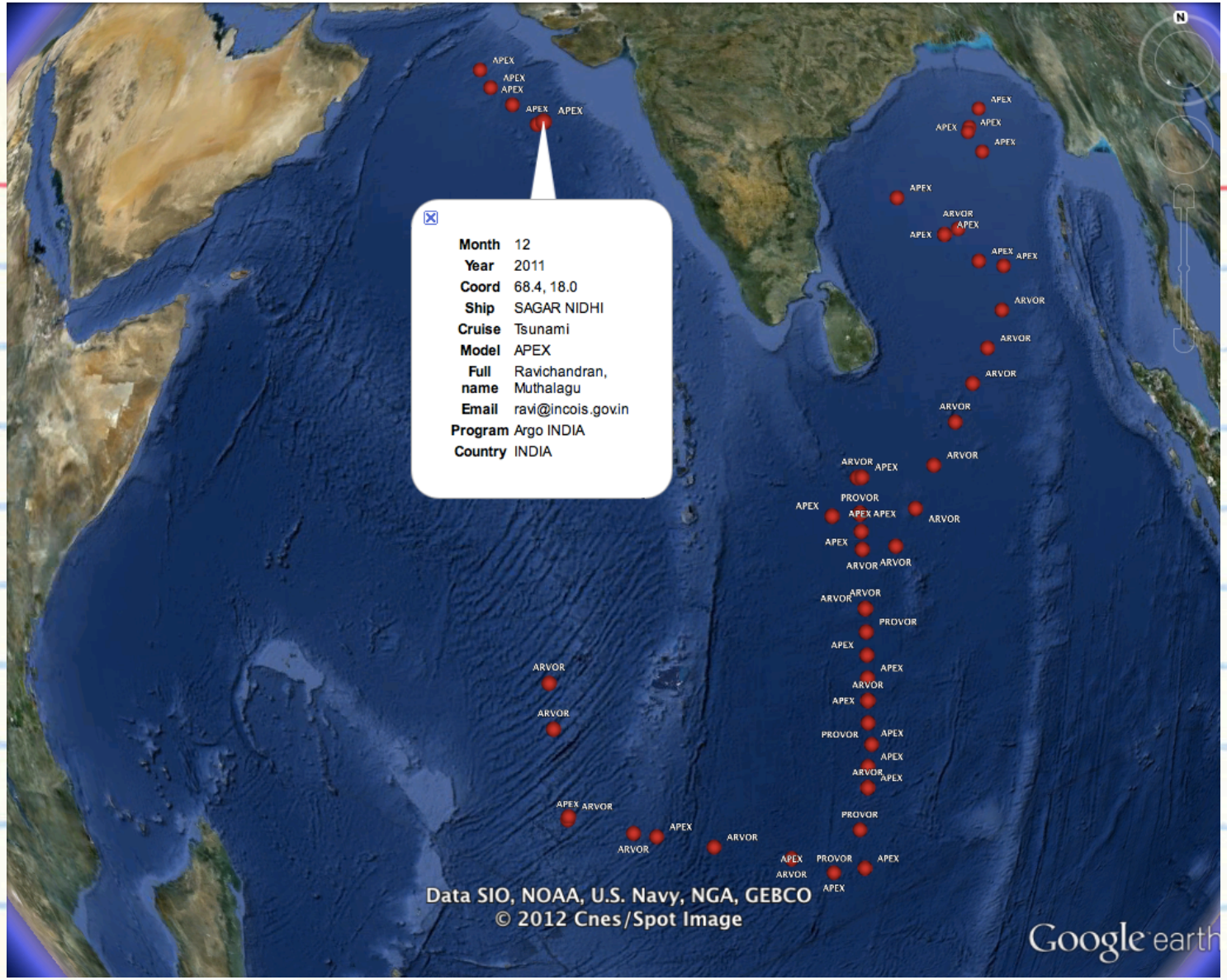


CCHDO: 1712 high-resolution CTD casts added since ADMT-12 meeting

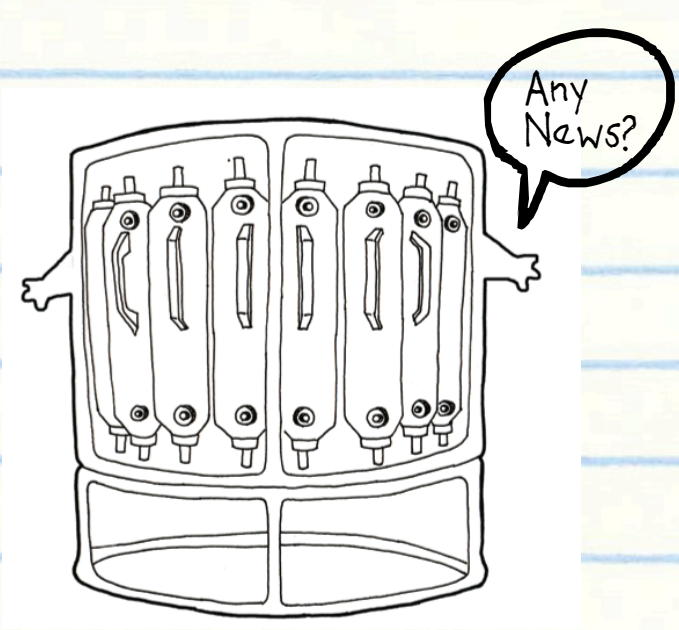
JCOMMOPS knows where the floats were deployed



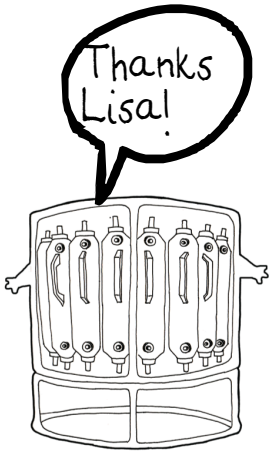
So, JCOMMOPS helps us find stuff to chase down

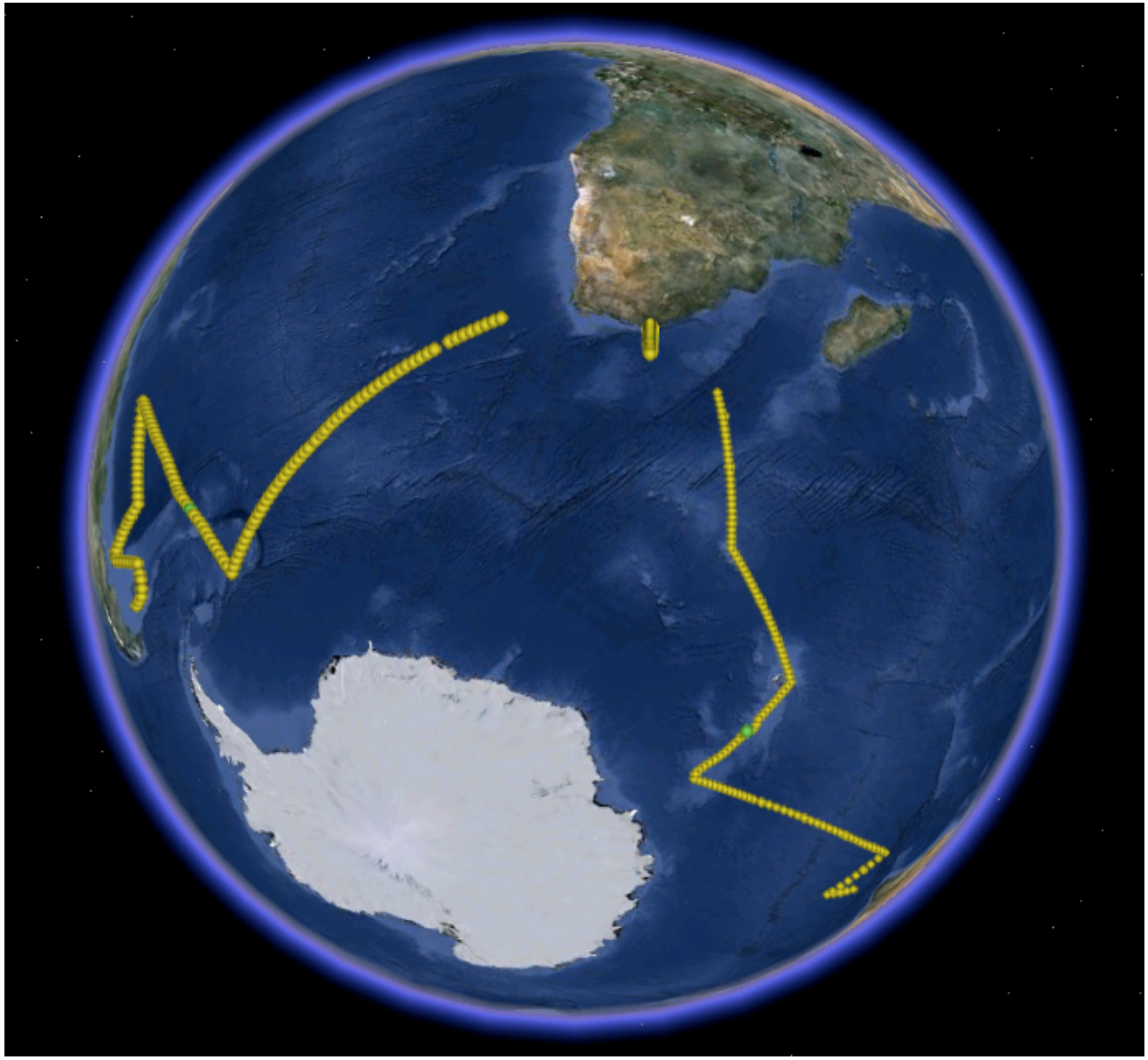


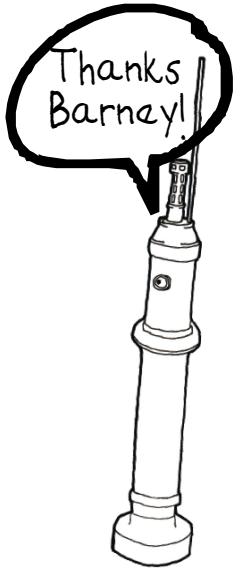
With a little help from YOU!



New and Notable: Beal and Balch







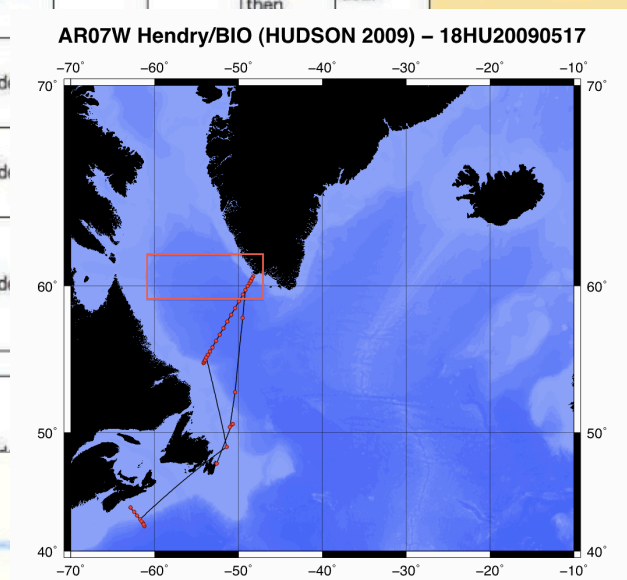
Feedback is Good! (Item 6.3 #13)

BODC-Argo-OW_cookbook_comments_for_annie-jBuck

File Edit View Insert Format Data Tools Help All changes saved

CTD climatology frequently reports positive Salinity anomalies that are greatly reduced when the Argo climatology is used.

LAT	LON	Software	Mapping Scale - x (deg or km)	Mapping Scale - y (deg or km)	Mapping Scale - t (days or yrs)	PV	Theta range used	Pressure range used	Reference database	Comments	Float examples (wmo id)	Operator's email address	Link to QC document
25-30N	~340E	OW	8/4 deg	4/2 deg	10 yrs	no	11-14 deg C	300-600 dbar	CTD_for_DMQC_2010V1	Historical data in CTD reference database are out-of-date in this region. Needed to use Argo climatology for salinity evaluation.	6900611	Justin Buck, juck@bodc.ac.uk	
57N-66N	20W-42W	OW	8/4 deg	4/2 deg	10 yrs	no	start with OW chosen levels then	exclude top 250 dbar	CTD_for_DMQC_2010V1	Observed variability in CTD reference data much less than observed Argo profiles, 0.02 differences in Salinity.	6900388	Justin Buck, juck@bodc.ac.uk	
59N-62N	46W-62W	OW	8/4 deg	4/2 d						Large upper level surface temperature inversions along greenland coastline, exclude these from mapping. Insufficient reference data for northern Labrador Sea.	6900388	Justin Buck, juck@bodc.ac.uk	
52N-59N	12W-18W	OW	8/4 deg	4/2 d						Most stable levels seem to be 0-6 deg C. For floats that do not sample to 2000m every profile this level needs to be forced.	6900387	Justin Buck, juck@bodc.ac.uk	
62N-69N	6W-3E	OW	8/4 deg	4/2 d						Water masses below 1000 m are below seasonal NE Atlantic signals and work well for DMQC.	1900192	Justin Buck, juck@bodc.ac.uk	
										Reference data out of date, offsets of up to 0.02 at theta levels 8-11 deg C in 2009/2010 Argo profiles. Ended up		Justin Buck,	



PROBLEM: Getting CTD data within EE Zones in the Indian Ocean

We (Buck, Davis, Diggs) met with YK Somayajulu

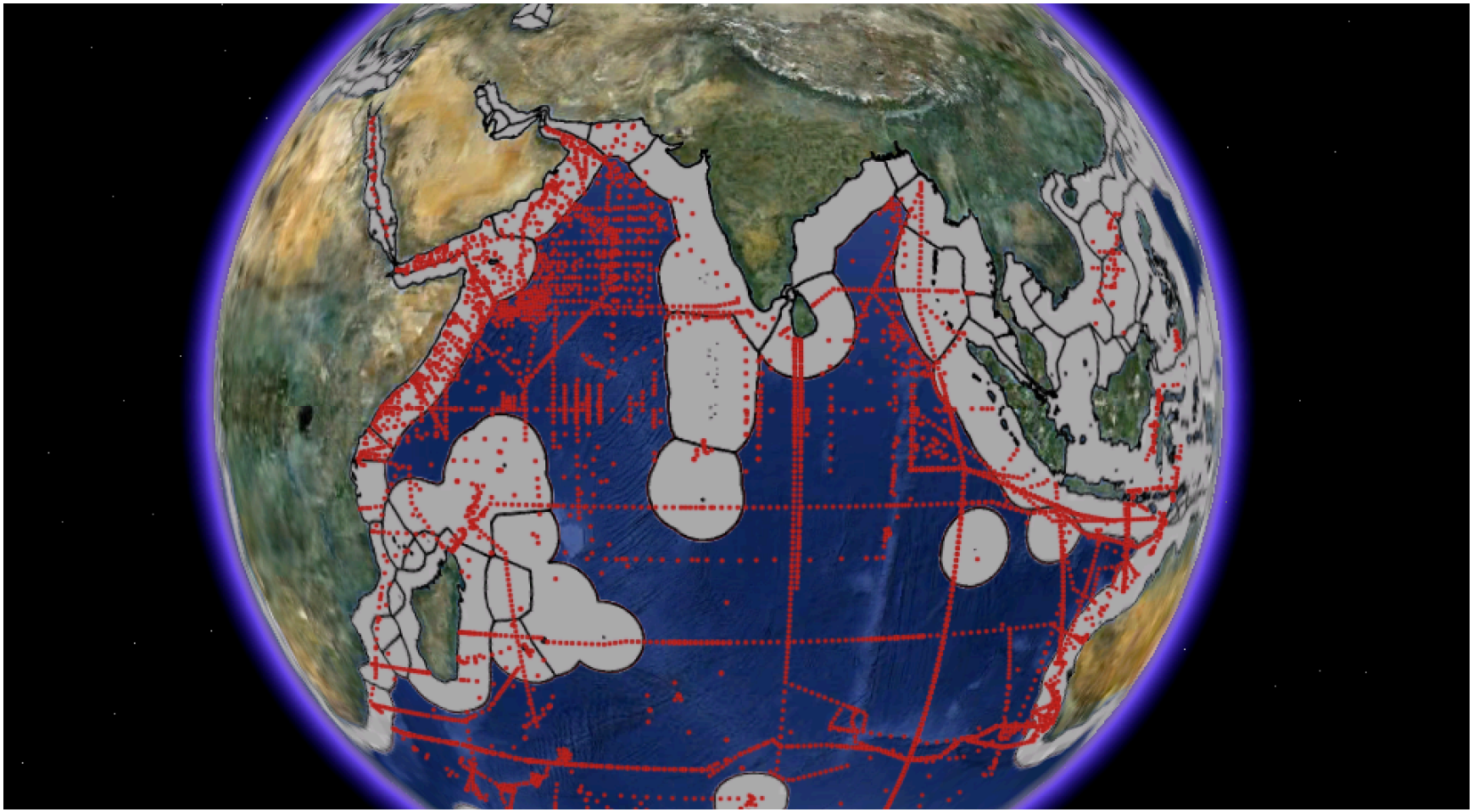
A new atlas of temperature and salinity for the North Indian Ocean

A Chatterjee[1,*], D Shankar[1], S S C Shenoi[2], G V Reddy[1], G S Michael[1], M Ravichandran[2], V V Gopalkrishna[1], E P Rama Rao[2], T V S Udaya Bhaskar[2] and V N Sanjeevan[3]

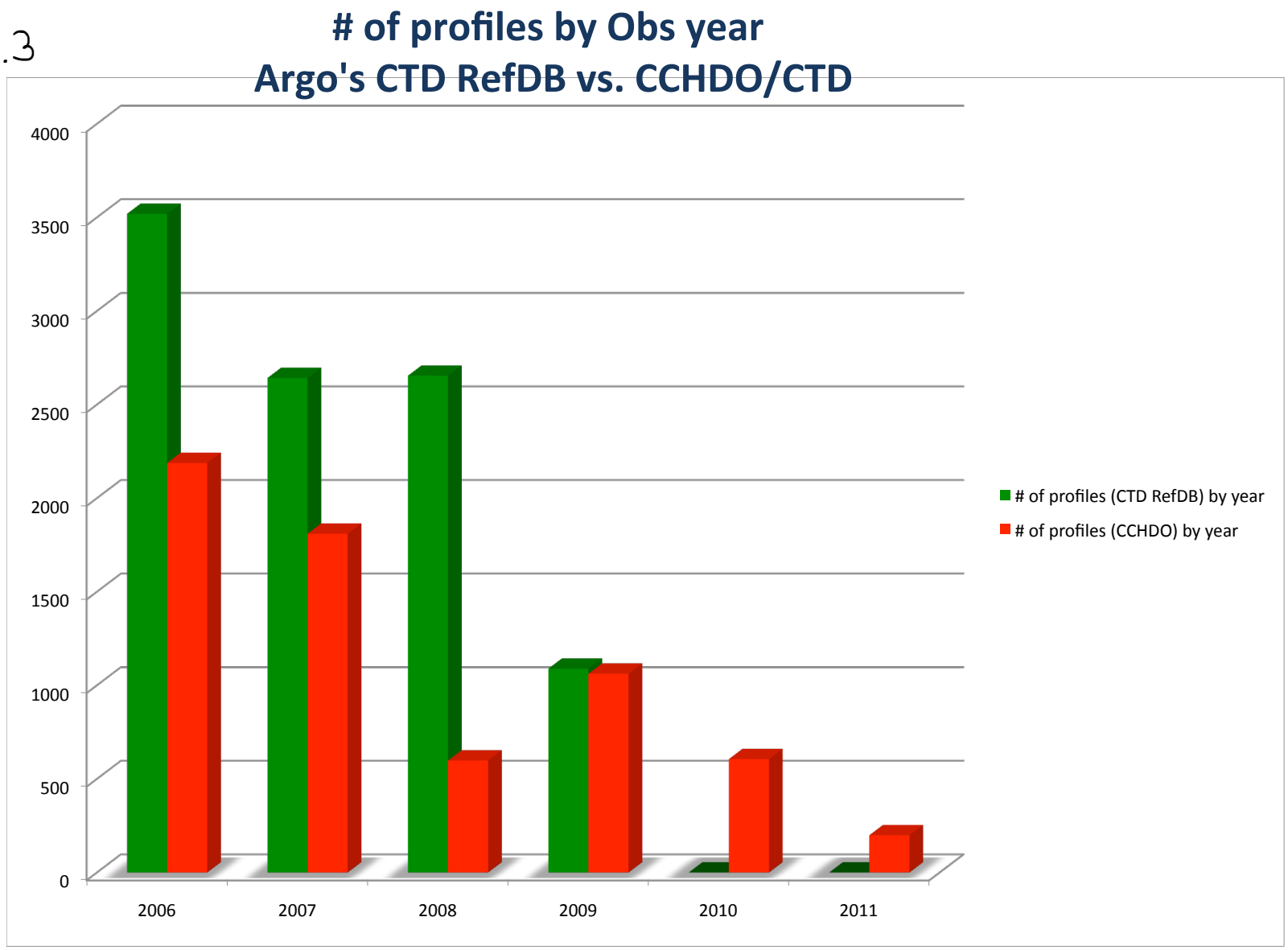
[1]*National Institute of Oceanography (Council of Scientific and Industrial Research), Dona Paula, Goa 403 004, India.*
[2]*Indian National Centre for Ocean Information Services, Ocean Valley, Hyderabad 500 055, India.*
[3]*Centre for Marine Living Resources and Ecology, Kendriya Bhavan, Kochi 682 037, India.*
**Corresponding author. e-mail: chatterjeea.ocean@gmail.com*

The most used temperature and salinity climatology for the world ocean, including the Indian Ocean, is the *World Ocean Atlas* (WOA) (Antonov *et al* 2006, 2010; Locarnini *et al* 2006, 2010) because of the vast amount of data used in its preparation. The WOA climatology does not, however, include all the available hydrographic data from the Indian Exclusive Economic Zone (EEZ), leading to the potential for improvement if the data from this region are included to prepare a new climatology. We use all the data that went into the preparation of the WOA (Antonov *et al* 2010; Locarnini *et al* 2010), but add considerable data from Indian sources, to prepare new annual, seasonal, and monthly climatologies of temperature and salinity for the Indian Ocean. The addition of data improves the climatology considerably in the Indian EEZ, the differences between the new *North Indian Ocean Atlas* (NIOA) and WOA being most significant in the Bay of Bengal, where the patchiness seen in WOA, an artifact of the sparsity of data, was eliminated in NIOA. The significance of the new climatology is that it presents a more stable climatological value for the temperature and salinity fields in the Indian EEZ.

Synthetic profiles in India's EEZ, actual profiles outside of EEZ



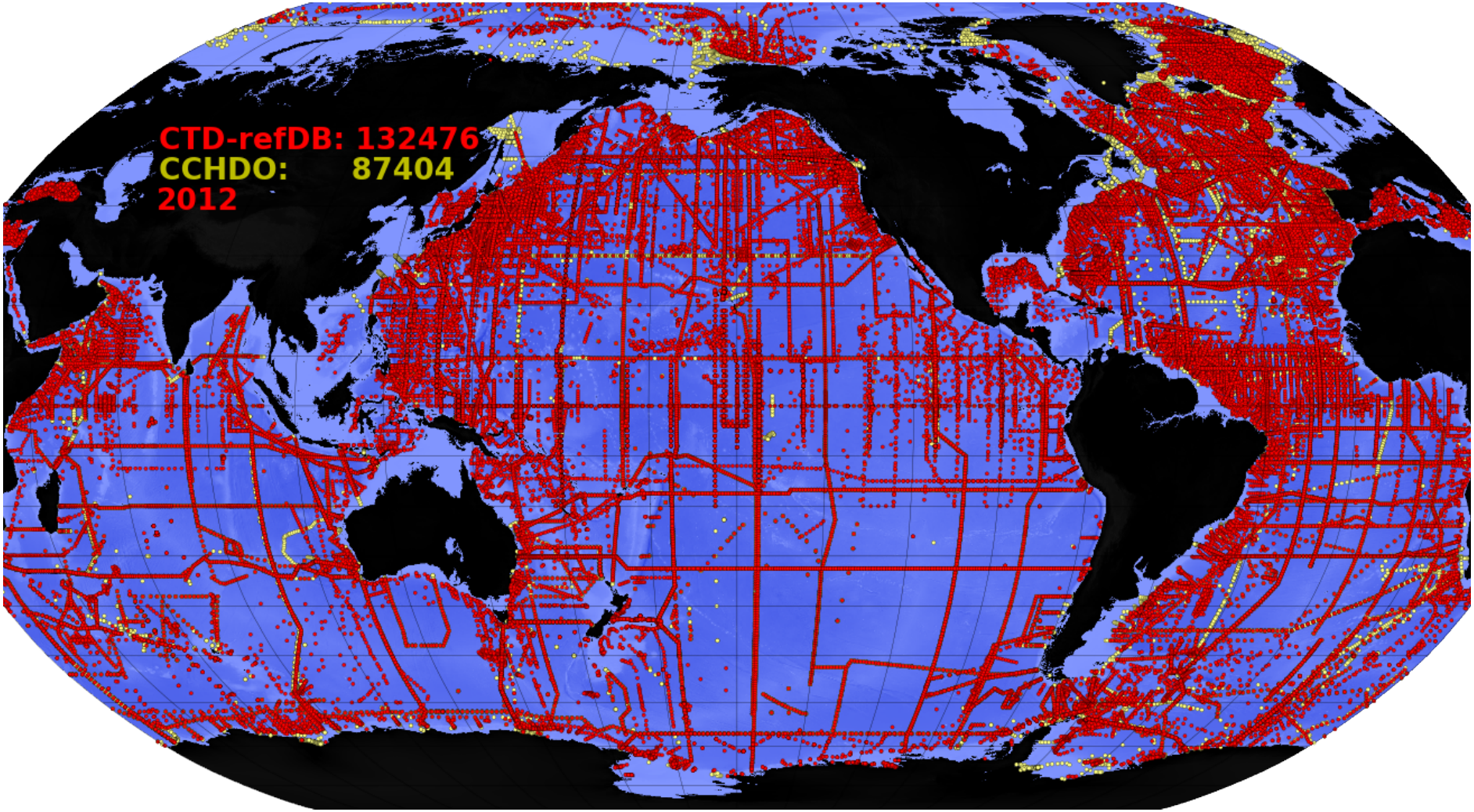
Item 6.3
#14


# of profiles by Obs year
Argo's CTD RefDB vs. CCHDO/CTD
4000
3500
3000
2500
2000
1500
1000
500
0
2006
2007
2008
2009
2010
2011
# of profiles (CTD RefDB) by year
# of profiles (CCHDO) by year

We (CCHDO, Coriolis, US-NODC) agreed to exchange 'inventories', so it's not a problem anymore

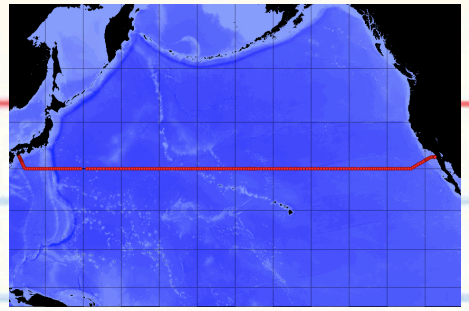
2011_V01	2010_V02				Pirata Drake JVLG3 (CSIO)	Correction on box limits (feedback from M.Starwarz)
2012_V01	2011_V01	Update NODC (from WOD2009 to August 2011) + update till January 2012			CSIRO – Southern surveyor & Franklin)	
2012_V02	2012_V01	Update NODC August 2012	33AT20060118 64PE20050907 64PE20070830 a05_74DI20100106 a13.5_33RO20100308 a16s_2005a a20_ctd act1111 AR04_06MT20050813 mv1101 P06_318M20091121 P06_318M20100105 p21_49NZ20090410 p21_49NZ20090521 rr1202 S04P_320620110219 SM1001 SS2010	ICES 1970 to 2012		
2013_V01	2012_V02 (updated)					Bug on date

New RefDB for March 2013
(added > 10K profiles, since Nov 2012)



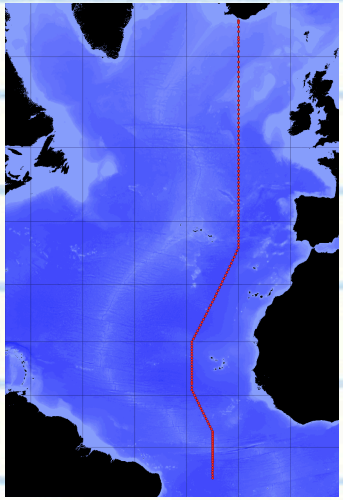
Upcoming CLIVAR Cruises
(~ 500 profiles in 2013)

P2: Mar-May 2013 -> ~190 profiles



A16N (leg1): June 2013 -> ~150 profiles

A16N (leg2): July2013 -> ~150 profiles



(A16S & P16S in 2014)

Bob Key's Contributions and Concerns (Princeton)

The plan is to merge GLODAPv1, CARINA, and PACIFICA, into GLODAP v2. Bob's group is willing to give early release CTD data from 50-100 cruises (yay!) CCHDO to reformat (no QC needed)

<u>HOWEVER</u>, he has a couple of concerns.
"What does Coriolis/DMQC already have? Also, are these profiles updated from when the original data are modified? Will the data providers get proper credit?"

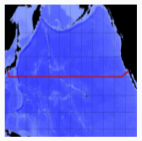
→ ACTIVE INVENTORIES

Global Data Interoperability:
CCHDO / GO-SHIP will offer data in Argo format later this year

HOME FIND DATA SUBMIT INFORMATION

Information

ExpoCode: 318M200406
Aliases: P2, 318M20040615
Collections: P02, Pacific Onetime, Arctic, P01, East Pacific
Ship: MELVILLE
Country: USA
Chief Scientists: James Swift (Scripps Institution of Oceanography University of California San Diego)
Cruise Dates: 2004-06-15/2004-08-27


Full Map

Dataset

See as received data and see merged data

Exchange
- CTD
- Bottle

NetCDF
- Bottle

WOCE
- CTD

Files As Received

Merged

File Type	File	Date Merged	Suggested by
archive	archive_7348.tar	2013-02-05	CCHDO importer
map_thumb	p02_318M200406trk.jpg	2010-06-17	CCHDO importer
map_full	p02_318M200406trk.gif	2010-06-17	CCHDO importer
bottle_woce	p02_2004ahy.txt	2009-07-09	CCHDO importer
bottlezip_netcdf	p02_2004a_nc_hyd.zip	2009-07-08	CCHDO importer
bottle_exchange	p02_2004a_hy1.csv	2009-07-08	CCHDO importer
woce_ctd	p02_2004a_ctd_nc.zip	2007-10-29	CCHDO importer
ctdzip_exchange	p02_2004a_ct1.zip	2007-10-29	CCHDO importer
ctdzip_woce	p02_2004act.zip	2007-10-29	CCHDO importer
doc_txt	p02_2004ado.txt	2006-11-02	CCHDO importer
doc_pdf	p02_2004ado.pdf	2006-11-02	CCHDO importer
sum_woce	p02_2004asu.txt	2005-06-27	CCHDO importer

IODE says that GO-SHIP is an ADU

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Twenty-second Session of the I
Committee on International
Oceanographic Data and Informa
Exchange (IODE-XXII)
Ensenada, Mexico, 11-15 March 2013

DRAFT RECOMMENDATION IODE-XXII.[8.3.2] REV3
(prepared 14/3/13 14:20)

IODE Associate Data Unit (ADU)

The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the important role and success of the IODE National Oceanographic Data Centres (NODCs) as key partners in realizing the IODE objectives,

Noting the importance of including the wider ocean research and observation community as key stakeholders of the IODE,

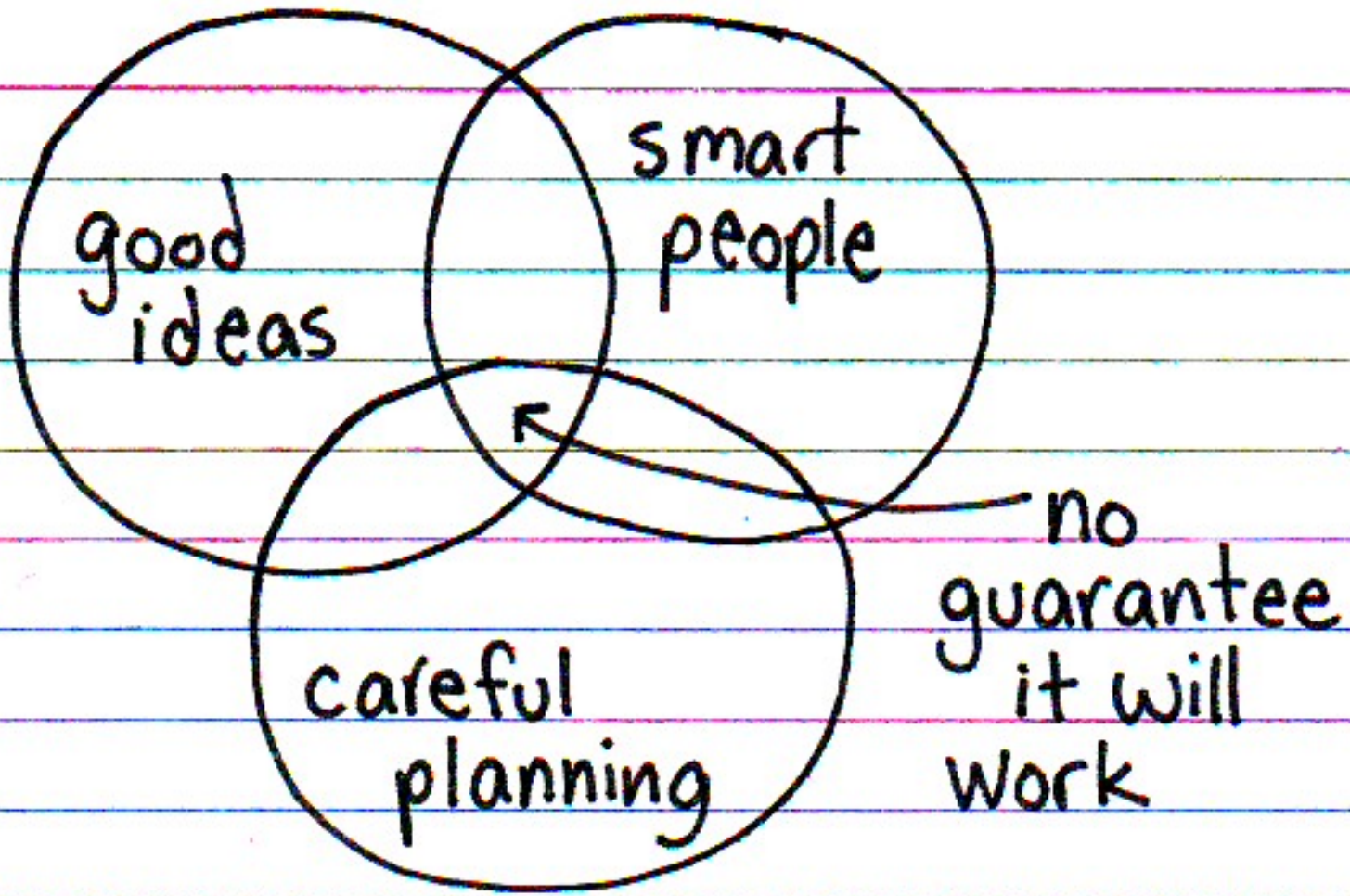
Noting further the growth of ocean research and observation programmes and projects, and the ability of these projects to establish data systems,

Stressing the need to share, provide access to and to preserve all ocean research and observation data,

Noting the importance of standardization and interoperability of data and information systems across the ocean research and observation communities,

Recommends the establishment of IODE Associate Data Units (ADUs) as structural elements of IODE with the following Terms of Reference:

IODE Associate Data Units (ADUs) shall:

(i) Be national projects, programmes, institutions or organizations, not NODCs, or regional or international projects, programmes, institutions or organizations that carry out data management functions,

We remain, as ever, optimistic