

Outreach

ICDP and its projects needs to have a **mission statement** and prepare messages for the **stakeholders** and the **public** conveying this

Outreach is **important** & should be **prioritized** & **adressed early** on

Lack of outreach planning can **wreck** a project (eg. Italy)

We have **stories** to tell

Public outreach

More use of **social media** from ICDP (which is time-consuming)

Thrill to Drill should be updated (new title & brochure)

Outreach needs to use **different channels** (tools and approaches)

We need **more designated** outreach people (young ones)

A **travelling exhibition for museums** was discussed (six digits \$)

More **outreach guidance** provided **by ICDP to PI's**, eg. to produce press releases, events etc. *(there are many expert persons in ICDP, Amy of the US coordination office CSDCO has offered help with outreach guidance)*

Training

We should define **teaching quality standards**

Preparatory materials for students

More **active involvement** for students (hands-on)

Include **more outreach training elements** (eg. videos, blog posts, twitter, media etc.) early on in the training



Report from Session-II - Project Management & Engineering

OSG to be present at every WS with a check list to advise/educate PIs in operational planning questions

OSG to act as a facility board jointly with PIs to assist in project preparation. Selection of services should maintain flexibility by Pis

Before operation a WS incl. DWOP shall be conducted with PIs, OSG and service providers.

A reliable and timely operational reporting to OSG is mandatory for a working and efficient field support. OSG should be give the authority to enforce timely reporting.

The development / acquisition of a portable rig data recording system to be installed together with DID on every drill rig working for an ICDP co-funded project is considered as an option.



Report from Session-II - Project Management & Engineering

ICDP shall request a final technical report after closure of all projects to be filed and web-published by OSG. PIs should be responsible for this report. Future funding should be contingent of receiving this report. This report will be the mechanism for the technical lessons learned to be relayed to the OSG and future PIs.

SAG shall review project management qualification and may request a project manager (drilling supervisor) to be included.

In view of people health and protection of the environment, it is recommended that ICDP management shall make a commitment for a general ICDP QHSE System to be implemented for all ICDP funded projects. This has already started with the Oman project

ICDP has no formal learning culture, therefore it is recommended that OSG to assure that experience from ICDP projects and field operation is captured, documented and transferred to future ICDP projects. It is the responsibility of the PIs to write the necessary report.

Group III: Data – Curation - Publication



DATA–CURATION–PUBLICATION

SUMMARY Subtopic 1: Data and Sample Management in the Framework of ICDP (Dr. Jens Klump, AUS, CSIRO)

- Priority #1: Develop **Standardized Data Management Plans** associated with proposals (Open Access policy; Meta Data; Moratorium; Curation)
- Priority #2: **Streamline data curation** and foster **use of mobile systems** to acquire and access data
- Priority #3: Enhance **Web Portal** to easily access metadata and data
- Priority #4: Identify **suitable data formats** and **user interfaces** which allow connecting with other external data management systems (e.g. LacCore; IODP; other organizations)
- Action #1: Improve on **Project MoU's** (incl. with other agencies) and **enforce** them
- Action #2: Discuss with experienced PIs and follow "Blueprint Projects" (e.g. COSC; Koyna); foster technical evolution of DIS/Web tools
- Costs: Development costs (Web Portal; Mobile Apps), HR

DATA–CURATION–PUBLICATION

SUMMARY Subtopic 2: Standards and Tools

(Dr. Anders Noren, LacCore, USA)

- Priority #1: **Accredited repositories** with standardized workflows and data (formats)
- Priority #2: Sufficient **Staff Resources** to support ongoing projects to ensure proper implementation of standards and use of tools
- Priority #3: Sufficient **Instrumentation Resources** to support ongoing projects
- Action #1: **Define Accreditation Process** (e.g., data and material accessibility)
- Action #2: Provide and accommodate **enough (Wo)man Power**
- Action #3: Establish **Instrumentation Pool** on a shared-cost base
- Costs: 2-B defined

DATA–CURATION–PUBLICATION

SUMMARY Subtopic 3: Data Sharing and Publication

(Dr. Kirsten Elger, GFZ, GER)

- Priority #1: Define **Primary Data to be shared** prior to project start
- Priority #2: Make **Operational Report mandatory** within moratorium
- Priority #3: Establish **IGSN Registration** standard through DIS tool
- Action #1: Refine **IGSN granularity** (incl. sub-samples, pieces,...)
- Action #2: Overcome conflicting requirements re: Moratorium (different when publishing in Sci.Dril.Jour. vs defined in MoU)
- Action #3: Tie OP Report directly to post-drilling workshop (WS)
- Action #4: ICDP shares costs for data-sharing for each project under a well-defined moratorium time line
- Costs: Extra (yet worthwhile) ICDP-\$\$\$ for WS; same for data sharing

Key Measurements and Tools

Downhole Logging – Moderator Maria Åsk

- Current 4 staff (can run 2 shifts continuously)
- Tools – slimline,
- no nuclear tools – but use of winch possible
- XRF/Density tool.
- Density tool without source
- Cable for greater than 2000 m
- Should be more emphasis on detection and sampling of in situ fluids, core.
- Imaging tools – slimline electrical imaging tool (available?) – potential for development
- Geochemistry ‘tools’ (e.g. XRF)
- Gyroscopic or survey tool -
- Downhole microgravity measurement
- ‘Higher’ temperature determination (current digital 260°) – needs societal based (geothermal, induced seismicity)
- Memory Tools, Logging while drilling



- Priority and Timeline
- Short term, what is there?
 - Issue of amount of material (one set of tools – what about a cheaper set for Lake drilling (low temp, gamma, MS, sonic, ect, \$150K)
 - Sharing of resources within existing academic/institutes
- Long term, what do we want, can we develop?

- Other issues

- Funding – could projects pay more (OSG is inexpensive in a relative sense)
- Recognition of OSG ‘in kind’ contribution (would help more ‘leveraging’ for outside funding.
- Funding – sources for construction of units.
- More direct scientific involvement of OSG scientists

Integration Issues

- Gap – logging done but not used: need more integration of results – may need this to be made mandatory – OSG carries forward the data particularly if knowledge not always within the group.
 - General community – access to data for studies later
 - Specific PI groups – may not need all of the data.
- Provide standard ‘template’

- Simona Pierdominici

Sediment/Lake Measurements

Needs

Stratigraphic Correlation – 1st step to give depth scale

Geochemistry – elemental primarily

Piggy back temperature – (opportunity to obtain geotherm)

Desires

-Issues – What can be done in the hole (hole stability)

-In situ sampling to provide proper materials for dating (side wall coring + preservation)

-Downhole Fluid sampling (or downhole fluid analysis?)

-Extracting fluids directly from the rocks, change drilling approach- h to include fluids (should this be mandatory? – information is lost currently). Issue is whether this would be used or not?



Monitoring

- Fibre optic, DAS

Fault/Hard Rock Drilling

- Complex structure – unstable borehole
- Through casing? Only gamma, spectral gamma.
- Borehole Imaging, fracture statistics, sonic , density,
- Stress State
 - Possibility of fullbore dipole sonic array (??)
 - Stress state (hydraulic fracturing measurements)
 - Borehole Imaging
- Confined core sampling (drilling technology)

Cores, Cuttings, and Fluid Measurements

- Types of measurement on core Multi-Sensor Core Logger?
- Have ‘point’ measurement – P&S wave?

Deployment issues

- Training for MSCL – currently small amount of training .
- Bringing of personnel to field to help with set up/initial training
- PI have some responsibility (or given ‘advice’) that this should be done.

Other Ideas

- Additional scanning – CT scanning? Hyperspectral imaging.
- Where should this be done? Field or back in lab?
- Driver of in field measurements: Ephemeral measurements + needs for short term drilling decisions.
- Issues of biological core sampling – special requirements

OLGA discussion

- CO₂, CH₄, C+, He, Ar + isotopes - line measurements
 - Often only chance to sample (casing may block).
- Currently have an old instrument.
- OSG request for new tools – ‘simple’ tool for easier application
- Hardware all off the shelf, analytic part easily done. Issues with regards to gas separation from mud. ,
- May also help direct later sampling (fluid

Downhole Fluid Sampler

- Only way to obtain fluids in situ (pressure)
- Particularly complex
- Need more personnel continuity

Downhole Installations

- Seismic, strain, pressure, temperature, gravity, etc.
- Project dependent –
 - Campaign measurements – wireline
 - Short term – weeks/months – wireline (OSG provides in part)
 - Long Term (years) – specialized, not really OSG responsibility
- Use of memory tools as possible short term instrument
- Development of standard ‘data logger’ unit
- Recording of experiences, OSG as a clearing house but should not be driving this.
- Can monitoring equipment be developed for slimhole.
- Combined fibre optic/sensor cable?
- Should ICDP insist that PI’s consider longer term potential of the boreholes if it works.
- Piggy back proposals? 2nd set of researchers may want short/long term use of borehole after it was drilled.
- OSG to make inventory of existing boreholes that might be available?

Additional OSG issues

Personnel – growth of drilling + potential adding of new systems → need for additional technical assistance.

Complexity and variety of instruments/services
→ continuity

Prioritization of work → how should this be developed