

# ELEVENTH ABLOS BUSINESS MEETING

## *Minutes*

Geoscience Australia

Canberra, Australia, October 19, 2004

### **Participants and affiliations**

#### *Members*

Chris CARLETON, IHO (UK)  
Don GRANT, IAG (New Zealand)  
Ron MACNAB, IOC (Canada)  
Chris RIZOS, IAG (Australia), Chairman  
Steve SHIPMAN, IHB (Monaco, ex-officio)  
Lars SJOBERG, IAG (Sweden)  
Sin TANI, IHO (Japan), Vice-Chairman  
Alexei ZINCHENKO, DOALOS (UN, ex-officio)

#### *Observers*

Bill HIRST, Geoscience Australia (Australia)  
Suryajit KANDAL, National Hydrographic Office (India)  
David ROBERTSON, Geoscience Australia (Australia)  
Clive SCHOFIELD, University of New South Wales (Australia)  
And others

#### *Apologies*

Carlo DARDENGO, IHO (Italy)  
Elie JARMARCHE, IOC (France)  
SHI Xuefa, IOC (China)

### **1. Opening statements and meeting arrangements**

Chairman Chris Rizos called the meeting to order, and thanked the staff of Geoscience Australia for organising and hosting the overall visit (18-20 October) by ABLOS members (Annex 1). The visit consisted of GA presentations on aspects of Australia's UNCLOS-related activities (18 October), the business meeting (19 October), and a mini-seminar on Marine Scientific Research (20 October).

### **2. Designation of the rapporteur**

Chairman Chris Rizos suggested he would take the minutes and prepare the draft of the report of the 11<sup>th</sup> ABLOS Business Meeting.

### **3. Review of agenda and suggestions for new topics**

The agenda (Annex 1) was approved, although several of the items were dealt with in a different order in order to accommodate the wishes of some members and observers. These minutes

reflect the order in which items were dealt with. Two extra items were added: a presentation on the Australia-NZ maritime boundary (including geodetic quality assurance), and survey results from the 3<sup>rd</sup> Biennial ABLOS Conference.

#### **4. Review and approval of minutes of the 2003 Business Meeting**

These were approved, and the following matters arising were noted:

- Section 5: The outgoing Chairman (Ron Macnab) drafted and sent a letter to the ABLOS parent organisations concerning funding support for ABLOS participants. The IAG did respond, but indicated that it would treat funding requests by IAG participants on a case-by-case basis.
- Section 5: The outgoing Chairman drafted and sent a letter to the ABLOS parent organisations drawing attention to particular issues of interest.
- Section 6: The outgoing Chairman drafted and sent a letter of thanks to the three retiring members of ABLOS: Tadahiko Katsura, Neil Guy and Bjorn-Geirr Harsson.
- Section 8: Progress on the revision of the TALOS manual is reported under Section 10 of this Business Meeting's minutes.
- Section 11: Several of these points were discussed further during this Business Meeting (Section 12), and the one on Marine Scientific Research was the topic of the mini-seminar that took place on 20 October 2004.

#### **5. ABLOS membership**

The current list of ABLOS members is found in Annex 2.

Attention was drawn to the resignation of IOC representative Samuel Betah (Cameroon) and his replacement by Elie Jarmarche (France). Elie is chair of the IOC's ABE-LOS and it is hoped that his membership of ABLOS will encourage a closer collaboration between ABLOS and ABE-LOS. It is unfortunate that Elie could not attend this Business Meeting. Of some concern is the fact that at the last two ABLOS meetings only one of the three IOC representatives were in attendance.

Some discussion took place on when ABLOS members were appointed, and therefore when the four year terms of some current members would be ending (see ABLOS Terms of Reference - Annex 3). The Chairman has the following information in this regard (the end year of the term corresponds to the last Business Meeting the member will attend, unless the term is extended):

Chris CARLETON, IHO (UK), 2002-2006  
Carlo DARDENGO, IHO (Italy), 2003-2007  
Don GRANT, IAG (New Zealand), 2004-2008  
Ron MACNAB, IOC (Canada) 2004-2008  
Chris RIZOS, IAG (Australia), Chairman, 2002-2006  
Lars SJOBERG, IAG (Sweden), 2002-2006  
Sin TANI, IHO (Japan), Vice-Chairman, 2003-2007  
Elie JARMARCHE, IOC (France), 2004-2008  
SHI Xuefa, IOC (China), 2002-2006

Members were asked to verify these terms.

#### **6. ABLOS fund & financial report**

Steve Shipman reported that the 3<sup>rd</sup> ABLOS Conference (28-30 October 2003) generated a profit of over 6000 Euros. The issue of guidelines for the use of such moneys (kept in an account at the IHB) was addressed by the drafting of a set of guidelines on the ABLOS Fund (Annex 4). Following some discussion it was decided to change the amount from 2000 Euros to 3000 Euros in the sentence: “ABLOS may agree to use any funds in excess of 3000 Euros remaining after all expenses for a seminar / conference have been settled, to fund other activities conducted by ABLOS.” Such activities may include travel/subsidence in relation to the revision of the TALOS Manual. It was agreed that the ‘ABLOS Fund Guidelines’ be attached to the ABLOS Terms of Reference (Annex 3) as an annex.

## **7. Briefing on the delimitation of the Australia-NZ maritime boundary**

The recently announced Australian-NZ maritime boundary was discussed (Annex 5), and insight into the methodologies for the delimitation was obtained from Bill Hirst (Geoscience Australia) and Don Grant (Land Information New Zealand). The two parties were applauded for their actions. Don Grant also made a presentation on the “geodetic QA” that his department (LINZ) carried out to verify the derived coordinates of the seabed boundary (see Annex 6).

## **8. New developments related to CLCS submissions**

The 2001 Russian submission to the Commission on the Limits of the Continental Shelf has not yet been resubmitted ([http://www.un.org/Depts/los/clcs\\_new/submission\\_rus.htm](http://www.un.org/Depts/los/clcs_new/submission_rus.htm)). The primary issues with the original submission were: (1) Japanese objections arising from an unresolved dispute over four of the Kuril Islands, and (2) the lack of access to the original hydrographic and geoscientific data supporting Russia’s claims to extended segments of the Lomonosov and Mendeleev Ridges.

The Brazil submission ([http://www.un.org/Depts/los/clcs\\_new/submission\\_bra.htm](http://www.un.org/Depts/los/clcs_new/submission_bra.htm)) has been presented and a CLCS sub-committee to consider the claim for an extended continental shelf is currently being established.

Australia will submit its claim to an extended continental shelf on 16 November 2004 ([http://www.un.org/Depts/los/clcs\\_new/submission\\_austr.htm](http://www.un.org/Depts/los/clcs_new/submission_austr.htm)). On 18 October Phil Symonds and other staff of Geoscience Australia gave ABLOS members a preview of the submission. Most impressive was the innovative use of Geographic Information System (GIS) tools. It was felt that the Australian submission will set the standard for other countries.

## **9. Global Vertical Reference Network and vertical datums in general**

The IAG activities in this regard are coordinated by Commission 1 “Reference Frames” (<http://iag.dgfi.badw.de>). An Inter-Commission Project ICP1.2 on “Vertical Reference Frame” has been established, with the objectives to:

- To elaborate a proposal for the definition and realization of a global vertical reference system (World Height System – WHS );
- To derive transformation parameters between regional vertical reference frames;
- To establish an information system describing the various regional vertical reference frames and their relation to a world height frame (WHF).

Steve Shipman is a member of the ICP1.2. Commission 2 “Gravity Field”

(<http://www.ceegs.ohio-state.edu/iag-commission2/>) deals with matters relating to the new satellite-derived gravity field models (Sub-Commission 2.3 “Dedicated Gravity Satellite Mapping Missions”, from which the next generation of high accuracy geoids will be developed. A high accuracy global geoid model would form the basis by which all vertical tide gauge and GPS-defined datums can be unified. However, from the perspective of hydrography such a geoid model could be used to convert ellipsoidal heights (either measured using GPS or extracted from a database) to a sort of “height above Mean Sea Level”. Hence a vessel could navigate using GPS and its relationship to the geoid would permit the relationship of the instantaneous sea level to sounding data or charts to be unambiguously determined. (There have been a number of papers in *The Hydrographic Journal* in 2004 on this topic, see “Chart Datum for Hydrography” by R.J. Martin & G.J. Broadbent, No.112, 9-14, and “Seamless Data and Vertical Datums – Reconciling Chart Datum with a Global Reference Frame” by R. Adams, No.113, 9-14.)

Steve Shipman reported on the activities of the European Combined Geodetic Network Working Group (<http://gibs.bkg.bund.de/ecgn/index.html>) (Annex 7), also an IAG initiative.

Recent activities of the FIG Commission 4 “Hydrography” (<http://www.fig.net/figtree/commission4/>) Working Group 4.2 “Vertical Reference Frame” was also reported on by Steve Shipman. Papers from the recent FIG Working Week in Athens May 2004 can be found at <http://www.fig.net/athens/>.

A joint meeting of IAG and FIG experts on vertical datums will be held at the next scientific assembly of the IAG, 22-26 August 2005, in Cairns (<http://www.dynamicplanet2005.com>).

Other activities worth noting include:

- The Global Sea Level Observing System (GLOSS) - <http://www.nbi.ac.uk/psmsl/gb.html>.
- The IGS Tide Gauge Benchmark Monitoring (TIGA) Pilot Project - <http://igscb.jpl.nasa.gov/projects/tiga/index.html>.
- Several projects of Geoscience Australia relating to Sea Level Monitoring - <http://www.ga.gov.au/nmd/geodesy/abslma/>.

## **10. Report on revisions to the TALOS manual**

Ron Macnab reported on a meeting of the TALOS editorial committee held on 18 October at Geoscience Australia (see Annex 8). In summary, progress on the preparation of the 4<sup>th</sup> TALOS manual:

- Much of the text has been completed by the individual authors and the files will be distributed to the various chapter editors for final editing.
- New figures are to be drawn. There is a chance that funding can be obtained to prepare the final figures in a professional manner. Shin Tani to investigate.
- The glossary, bibliography and table of contents still need to be prepared/completed.
- It was decided not to prepare a chapter on “digital methodologies”.
- It is hoped that the final draft will be ready in early 2005.
- It is suggested that the TALOS committee remaining standing, so that the revision of the TALOS manual becomes an ongoing responsibility of ABLOS.

## **11. Reports on attendance at international meetings, seminars & workshops**

Chris Carleton provided a brief synopsis of the following meetings/workshops he attended or

participated in.

*EEZs World Wide & the Context of the Deepwater Programme, London, 12-13 November 2003*

Organised by SMI and held at the Hatton Conference Centre. This well attended conference was targeted at the defence industry as well as government officials dealing with the management of EEZs. Chris Carleton gave a keynote address on "The Determination of Maritime Space". Other speakers covered the global overview and interoperability as the key to successful EEZ management, capabilities, funding, maritime security in the extreme littorals and case studies covering Norway, Malaysia and Australia during the first day. The second day covered largely defence issues.

*Unlocking the Arctic's Assets, London, 18 November 2003*

Organised by the Greenwich Forum in cooperation with the UK's Foundation for Science & Technology and the Foreign and Commonwealth Office. Held at the Royal Society in London. The conference covered environmental, economic and political issues in the opening up of the Arctic and Sub Arctic to more people and economic activity. The one day conference had 4 sessions – Arctic Science and Environment, Economic Opportunities and Issues, Arctic Policy Dilemmas and The Way Forward.

*American Association of Petroleum Geologist's Annual Conference, Dallas, 19-21 April 2004*

A large conference and exhibition for the oil & gas industry. UKHO was exhibiting with Southampton Oceanography Centre and the London law firm of Kendall Freeman. The UK team held a one day workshop on UNCLOS article 76 issues. Attendance was disappointing for such a large event.

*Securing Your Nation's Rights to Continental Shelf Maritime Territory, Southampton, 10-14 May 2004*

The 4<sup>th</sup> annual five day course on UNCLOS Article 76 run by the Southampton Oceanography Centre (SOC) and the United Kingdom Hydrographic Office (UKHO). A very well attended course with some 25 participants from 13 States. Details for the 2005 course can be found at:

[www.soc.soton.ac.uk/COURSES/UNCLOS/course\\_index.html](http://www.soc.soton.ac.uk/COURSES/UNCLOS/course_index.html)

*Society for Underwater Technology (SUT), Ocean Resources Committee, London, 15 June 2004*

Regular meeting of the Ocean Resources Committee of the SUT, held at the Institute of Marine Engineering, Science and Technology in London. Paper presented to the committee on Coastal Zone Issues. This paper highlighted the inadequacies of the data sets used to define the low-water line of coastal States from which a State's maritime zones are calculated.

*IQPC Oil & Gas Conference International Boundary Disputes in Oil & Gas 2004, London, 28-29 June 2004*

IQPC is a professional conference organisation that arranges conferences on many themes including, as in this case the oil & gas sector. This well attended conference, held in the Café Royal, London, covered many legal and technical issues that have a direct impact on the oil & gas industry. Themes included Trends in International Boundary Disputes and Resolutions, The Rule of Capture in the Middle East, Law and Science in Settling Boundaries, Continuing Work in a Disputed Area, Resolving Disputes, case studies covering the Timor Sea, Gulf of Guinea, etc. Paper presented – "The Impact of Technical Input in the Determination of Maritime Space".

*International Boundaries Research Unit (IBRU), Durham University, Workshop – Maritime Boundary Delimitation, Durham, 12-14 July 2004*

The 22<sup>nd</sup> work shop run by IBRU was again fully booked with a waiting list for a further workshop on this subject to be run at a later date. The five tutors, Rod Bundy of Eversheds Frere Cholmeley, Paris, Chris Carleton of UKHO, Professor Maurice Mendelson QC, Martin Pratt of IBRU and Bob Smith of the US State Department covered the following subject areas – Zones of Jurisdiction and Maritime Limits, Baseline Delineation, Legal Principles of Maritime Boundary Delimitation, State Practice in Maritime Boundary Delimitation, Technical Aspects of Maritime Boundary Delimitation, Continental Shelf Beyond 200 Nautical Miles and Options for Resolving Maritime Boundary Disputes.

*International Boundaries Research Unit (IBRU), Durham University, Workshop – Negotiating International Boundaries, Durham, 15-17 July 2004*

The 23<sup>rd</sup> work shop run by IBRU was again fully booked. The five tutors, Judge David Anderson, Chris Carleton of UKHO, Derek Smith of LeBoeuf, Lamb, Greene & MacRae, Washington, Professor Ian

Townsend-Gault of the Centre for Asian Legal Studies, University of British Columbia and Ed Turner, Counsel for ExxonMobil covered the following subject areas – The Purpose and Value of Boundary Negotiations, Legal Principles in Territorial Negotiations, Building and Preparing a Negotiating Team, Negotiation Strategy and Tactics, The Role of the Technical Expert During Negotiations, Drafting an Agreement, The Role of the Energy Industry in Resolving Boundary Disputes and Track II Diplomacy as an Aid to Boundary Negotiations. A whole day was reserved for a practical exercise.

*International Law Association (ILA) – Legal Issues of the Outer Continental Shelf Committee Meeting, Berlin, 16-20 August 2004*

A further meeting of the ILA Extended Continental Shelf Committee was held in Berlin during the bi-annual ILA International Conference to review the latest draft of the Committee's report by Co-rapporteur Dr Alex Oude Elferink. Following two working sessions and one open session the draft report was presented to the ILA. The committee will meet again in Utrecht on 4<sup>th</sup> December to review the draft of the second part of the Report. This covers the Legal Regime of the Outer Continental Shelf.

*The International Foundation for the Law of the Sea Symposium on Maritime Delimitation, Hamburg, 25-26 September 2004*

This symposium, organised by The International Foundation for the Law of the Sea, was held at the International Tribunal for the Law of the Sea (ITLOS). The magnificent facilities at the Court were ideal for holding such a symposium. It was very well attended, over 100 delegates and extremely well organised. On the first day the following papers were presented – Maritime Delimitation in International Jurisprudence, The role of International Disputes Settlement Institutions in the Delimitation of the Outer Limit of the Continental Shelf, Provisional Measures and Interventions in Maritime Delimitation Disputes, What have the Convention and the Tribunal to Offer in Maritime Delimitation Issues, The Role of the Expert in Maritime Delimitation Cases, Preparing for a Delimitation Case, and Negotiating Maritime Delimitation Agreements. The second day covered the following papers – Maritime Delimitation in Complex Island Situations, a Case study on the Caribbean Sea, Maritime Delimitation and Italy, Especially with Respect to the Adriatic Sea and Maritime Delimitation in a Semi-enclosed Sea.

Ron Macnab reported on the meetings/workshops he attended/participated in.

*GEBCO Committees, Portovenere (Italy), 1-5 April 2004*

These meetings were largely of an organizational nature, with GEBCO still adjusting to a major change of leadership that took place in 2003, while simultaneously assessing its primary *raison d'être* and considering how best to adapt to changing times. The GEBCO organization shares its two parent organizations (IHO and IOC) with ABLOS, and while its primary focus is Ocean Mapping, it maintains a general awareness of UNCLOS issues, particularly where bathymetric knowledge is important. The meeting report is available at <http://www.ngdc.noaa.gov/mgg/gebco/gebcomeetings.html>

*IOC ABE-LOS Meeting, Lefkada (Greece), 4-7 May 2004*

ABE-LOS is one mechanism whereby member states convey their UNCLOS interests and concerns to IOC, and request action in addressing selected issues. The main topics considered during this year's meeting were: (1) the legal framework within the context of UNCLOS which is applicable for the collection of oceanographic data; (2) the IOC Internal Procedures related to an effective and appropriate use of Article 247 of UNCLOS; and (3) the practices of the IOC Member States regarding marine scientific research and transfer of marine technology. Members of ABE-LOS responded positively to my suggestion that they invite contributions from members of ABLOS concerning topic (1). Meeting documents (but not the minutes) are available at <http://ioc.unesco.org/unclos/#abelos4>

*Amerasia Basin Workshop, Washington D.C., 9-10 June 2004*

This meeting was organized by US academics as a session for reviewing what is known about the geological structure of the Amerasia Basin, and to consider how the region's tectonic history could have affected paleoclimatic conditions over geological time. Presentations were given by a number of US and international speakers, who focused on the scientific issues while avoiding comment on the Russian continental shelf submission that precipitated substantial debate (with political undertones) during meetings in 2003. The contents of these presentations and the feedback they generated from attendees will be used to develop a plan for scientific research - which could be relevant to the US stance on extended continental shelves in the Arctic Ocean.

*SCAR conference, Bremen, 26-30 July 2004*

My primary interest in attending this meeting was to participate in the launch of the project to construct the International Bathymetric Chart of the Southern Ocean (IBCSO) within the framework of the International Polar Year (IPY). It was also an opportunity for informal discussions of Article 76 issues with representatives from Australia and New Zealand, with particular emphasis on prospects for the application of Article 76 off Antarctica's continental margin.

*International Submerged Lands Conference, Halifax, 20-21 September 2004*

This conference assembled offshore administrators mainly from the USA and Canada, to whom I was invited to outline the scope of Article 76 and to offer an overview of the sorts of resource scenarios that could develop in due course.

*Arctic Marine Transport Workshop, Cambridge (UK), 28-30 September 2004*

This Workshop assembled regulators and practitioners of northern shipping for wide-ranging discussions on the impending increase in Arctic marine operations, as a consequence of the ongoing thinning and shrinking of the region's permanent ice cover. I was invited to describe a prospective scenario (which has yet to be confirmed through coastal state submissions and CLCS recommendations) which could see most of the central Arctic Ocean transformed into one large extended continental shelf shared by five coastal states. These developments could have a significant impact upon shipping operations, which marine operators need to be aware of.

Steve Shipman reported on the recent FIG Working Week in Athens May 2004 (see his report in Annex 7).

## **12. Discussion on future ABLOS activities (carry forward from 2003 meeting)**

The former chairman of ABLOS, Ron Macnab, had mentioned last year some possible initiatives for the following few years (2003-2005) that ABLOS could consider for either discussion, or as topics for forthcoming ABLOS conference(s), or joint consideration with the Board's parent bodies and other relevant LOS groups (such as ABE-LOS). These were:

- *Scientific consensus on ridge issue in different parts of the world*

Little more was presented, though Chris Carleton made a comment that the UK's extended continental shelf claim along the mid-Atlantic ridge around the UK Overseas Territory of Ascension Island would use the methodology outlined in a paper presented at the 3rd ABLOS Conference, held in Monaco in 2003. The paper can be accessed at:  
<http://www.gmat.unsw.edu.au/ablos/ABLOS03Folder/PAPER2-3.PDF>

In essence the claim is based on a foot of the slope using evidence to the contrary, which is the spreading centre of the ridge in this case, but could also be the apex of a ridge. A limit of 60 nautical miles is then claimed either side of the spreading centre for a distance of 350 nautical miles along the ridge.

- *Article 76 and marine scientific research (MSR)*

This was the topic of the mini-seminar held on 20 October (Annex 1). It was felt that with the advance in underwater 'data gathering' technology; the distinction (or otherwise) between MSR, hydrographic surveys and military data gathering; and the unclear language of UNCLOS in this regard; that this was a fruitful topic of discussion within ABLOS. While no final decision has been made, there was widespread consensus amongst ABLOS members that MSR might be a suitable theme for all or part of the 2005 ABLOS Biennial Conference.

Discussion also centred around how ABLOS could work more closely with the ABE-LOS in this regard, as there is a Working Group on “Legal Framework for the Collection of Oceanographic Data”. The WG’s Chairman has drafted a preliminary report which is now in the hands of WG members for comment. Considering the prospect of an MSR theme, next year’s ABLOS Conference might provide an opportunity for active collaboration with ABE-LOS.

- *Global vertical reference network*

The discussion on this topic was reported under Section 9.

- *International cooperation in ocean mapping*

The parent organisations of GEBCO, IHO and IOC, in conjunction with the GEBCO Guiding Committee are currently reviewing the organisational structure for Ocean Mapping. However it would appear that systematic ocean mapping in high seas areas attracts little support from national organizations nowadays (except where undertaken for Article 76 purposes), and that some form of concerted international action will be necessary if ever we hope to develop accurate maps of the global seabed.

- *Invited participation in training initiatives*

This matter was first raised at the behest of IOC during the 2002 ABLOS Business Meeting. This was followed by a series of negotiations between IOC and organisations that were interested in assuming substantive roles. However those negotiations appear to have ended inconclusively, with little or no agreement on future action.

- *Deposit of charts and lists of coordinates in digital form*

It was reported that DOALOS now has a reasonable capability for handling digital map data, and especially in GIS formats. In addition to the current technical person, another will be recruited.

### **13. Survey results: 3<sup>rd</sup> Biennial ABLOS Conference, 28-30 October 2003**

These are attached as Annex 9. Ron Macnab suggested that there is still a considerable interest on Article 76 and suggested that ABLOS consider running a one day tutorial on this topic at the 4<sup>th</sup> Biennial ABLOS Conference. A draft format for the tutorial was emailed to ABLOS members immediately following the Business Meeting, and is attached to these Minutes as Annex 10. (Subsequently a suggestion has been made to include a discussion of geodetic aspects as well.)

### **14. Planning for the 4th Biennial ABLOS Conference 2005**

There was considerable discussion amongst ABLOS members concerning possible venues and themes for the next ABLOS Conference. The following are some of the notes taken by the Chairman:

- Lindsay Parsons has written to several ABLOS members suggesting the Univ. of Southampton as a venue (Chair received email 14 October). Such a conference could include other sponsors such as ITLOS and the Nippon Foundation. Chris Carleton to followup.
- International Tribunal for the Law of the Sea (ITLOS), Hamburg, as a venue was suggested by Charis Carleton. Although superb facilities, it may only be available on a weekend. Chris to followup on conditions for use.
- There was suggestion made that perhaps the IOC could provide a venue in Paris. Ron Macnab



has sent an email seeking their view.

- Alexei Zinchenko suggested that DOALOS might be able to host a conference at the United Nations in New York.
- A suggestion was also made that the Nippon Foundation might sponsor an ABLOS conference in Tokyo, though this will likely be for conferences after 2005.
- The venue at the IHB in Monaco is still available, though its capacity is restricted to about 80 participants. The advantages are that the IHB can assist in the planning and execution of the conference. An alternative venue in Monaco is being sought, though the financial risk is greater if interest in the conference wanes.

Given all these options it was decided not to make a final decision yet, but to await the outcomes of several enquiries. It is anticipated that a decision will be made in the early new year. A conference committee will then be announced.

### **15. Close of meeting**

The Chairman thanked participants for their contributions to the discussions, and expressed appreciation and thanks to Geoscience Australia staff for hosting this meeting of ABLOS.

*Draft Agenda*  
**Eleventh ABLOS MEETING**  
October 18-20, 2004  
GeoScience Australia, Canberra, Australia

**PROGRAM FOR GA PRESENTATIONS – 18 OCTOBER 2004**

1:30 Welcome, introduction, etc. (Chris Rizos & Phil Symonds) - 20 min

1:50 Presentation on baseline issues (Bill Hirst) - 40 min

2:30 Presentation on the presentation and format of Australia's ECS submission (Shawn Stanley) - 30 min

3:00 Afternoon tea - 20 min

3:20 Issues relating to the requirement to deposit maritime boundary info with the UN (David Robertson)  
- 30 min

3:50 Demo of Advanced Visualization Models (David Beard) - 40 min

4:30 Close

4:30 Meeting time for the TALOS editorial team, an informal Q&A with some GA staff re maritime boundary / ECS issues, and a tour of the GA building.

Drinks at about 5:30pm and dinner in GA Canteen from 6:00pm.

## DISCUSSION TOPICS FOR ABLOS BUSINESS MEETING – 19 OCTOBER 2004

1. Welcoming address and meeting arrangements
2. Designation of the Rapporteur
3. Review of the Agenda and suggestions for additional agenda topics
4. Review and approval of Minutes of the 2003 Business Meeting, October 26-27
5. ABLOS Membership: Appointment of new IOC members to ABLOS to replace Betah & Xuefa
6. Guidelines for the operation of the ABLOS Fund & financial report
7. Briefing on the delimitation of the Australia-NZ maritime boundary
8. New developments (if any) related to CLCS submissions, e.g. Russia, Brazil
9. Report on developments re Global Vertical Reference Network & vertical datums in general
10. Report on revisions to the TALOS Manual
11. Reports of attendance at international meetings, seminars & workshops:  
(Chris Carleton):
  - 12-13 Nov 2003: London, SMI Conf – EEZs World Wide & the Context of the Deepwater Programme
  - 18 November 2003: London, Royal Society, Arctic Issues
  - 19-21 April 2004: Dallas, AAPG Conference
  - 10-14 May 2004: Southampton, UKHO/SOC Extended Continental Shelf Course
  - 15 June 2004: London, IMEST, SUT – Ocean Resources Committee
  - 28-29 June 2004: London, IQPC Conference International Boundary Disputes in Oil & Gas
  - 12-14 July 2004: Durham, IBRU Workshop - Maritime Boundary Delimitation
  - 15-17 July 2004: Durham, IBRU Workshop – Negotiating International Boundaries
  - 16-20 August 2004: Berlin, ILA – Extended Continental Shelf Committee
  - 25-26 September 2004: Hamburg, ITLOS Symposium – Maritime Delimitation  
(Ron Macnab):
  - 1-5 April 2004: Portovenere (Italy), GEBCO Committees
  - 4-7 May 2004: Lefkada (Greece), IOC ABE-LOS Meeting
  - 9-10 June 2004: Washington, Amerasia Basin Workshop
  - 26-30 July 2004: Bremen, SCAR conf
  - 20-21 September 2004: Halifax, Int. Submerged Lands Conf
  - 28-30 September 2004: Cambridge, Arctic Marine Transport Workshop  
(Steve Shipman):
  - 22-27 May 2004: Athens, FIG Working Week
12. Discussion on future ABLOS activities (carry forward from 2003 meeting):
  - Forging a scientific consensus on ridge issues in different parts of the world
  - Marine Scientific Research & ABE-LOS collaboration
  - Global Vertical Reference Network
  - International cooperation in Ocean Mapping
  - Participation in training initiatives
13. Planning for the 4th Biennial ABLOS Conference in 2005
14. Other business
15. Close of meeting

## **ABLOS SEMINAR ON MSR – 20 OCTOBER 2004**

Welcome by Chris Rizos and Trevor Powell.

9:15 – 9:45 Uwe Zimmer (ANU): New Micro-Sub Technologies for MSR

9:45 – 10:15 Hilary Sullivan (Dept of Environment & Heritage): Marine Protected Areas

10:15 – 10:45 Trevor Powell (GA): Marine Geoscience Research in Geoscience Australia – Recent Results & Future Challenges

10:45 – 11:15 Morning Tea

11:15 – 11:45 Clive Schofield (UNSW): Introduction to UNCLOS & MSR Issues

11:45 – 12:15 Ron Macnab (Geological Survey Canada, retired): Legal Framework for the Collection of Oceanographic Data

12:15 – 12:45 Phil O'Brien (GA): The Contribution of Marine Geoscience to Understanding the Antarctic

12:45 – 13:00 Chris Carleton (UKHO): Military Data Gathering

13:00 – 14:30 Close of mini-seminar & lunch

Afternoon. Tour of the Mt Stromlo SLR facility. Return to GA by 16:30 and formal close of activities.

*IOC representatives:*

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**TERMS OF REFERENCE**  
**For the Advisory Board on Hydrographic,  
Geodetic and Marine Geo-Scientific Aspects of  
the Law of the Sea (ABLOS) of the  
International Hydrographic Organization (IHO),  
the International Association of Geodesy (IAG) and  
the Intergovernmental Oceanographic Commission (IOC)**  
**(amended 20 September 1994 and 8 September 1999)**

**1. OBJECTIVES**

The Advisory Board has the following objectives:

- a) To provide advice and guidance and, where applicable, offer expert interpretation of the hydrographic, geodetic and marine geo-scientific aspects of the Law of the Sea to the parent Organizations, their Member States or to other organizations on request.
- b) To review State practice and jurisprudence on Law of the Sea matters which are relevant to the work of the Board so as to be in a position to provide expert advice when needed.
- c) To study, promote and encourage the development of appropriate techniques in the application of the technical provisions contained within the UN Convention on the Law of the Sea.
- d) To issue, review and update ABLOS publications as necessary and to review the IHO Special Publication S-51 "A Manual of Technical Aspects of the United Nations' Convention on the Law of the Sea - 1982" (TALOS Manual).

**2. CONSTITUTION**

The Advisory Board shall be composed of ten full members, preferably chosen with wide geographic representation. Each of the parent Organizations (IHO, IAG and IOC) shall appoint three members. The Division for Ocean Affairs and the Law of the Sea of the UN Office of Legal Affairs (DOALOS) shall have a representative in an ex-officio capacity.

There may be any number of corresponding members of the parent Organizations. These corresponding members may participate in the meetings as observers but may not vote.

### **3. FULL MEMBERSHIP**

The term of office of a full member is four years, after which he/she may be re-appointed or replaced.

Members are expected to attend every meeting of the Board, which will normally take place once a year, and to conduct business by correspondence between meetings. In the event of a member's absence from two consecutive meetings, that member's status on the Board will be considered to have lapsed and a call will be made for a new appointment.

Although appointments are made by the parent Organizations and the appointees are accountable to their own parent Organizations, they are expected to serve as individual experts in their own right. However no statements or publications may be issued in the name of the Advisory Board without its prior approval.

### **4. CHAIRMAN AND VICE-CHAIRMAN**

The Chairman and Vice-Chairman shall be members of the Board from alternate parent Organizations on a rotational basis. They will serve for two years, after which the Vice-Chairman becomes Chairman and a new Vice-Chairman is elected. If the Chairman is not present or available, the Vice-Chairman shall act in this capacity until the next meeting. Should the Vice-Chairman not be available to take office as Chairman when required, a new Chairman and a new Vice-Chairman should be elected.

### **5. SECRETARIAT**

The Secretary shall be appointed by the Advisory Board and secretarial services shall be provided and financed by the International Hydrographic Bureau (IHB).

### **6. MEETINGS**

- a) The Advisory Board shall normally meet once a year at a venue and time that minimize cost.
- b) Seminar and Technical Conferences held in conjunction either with other Organizations or with the Advisory Board Meetings may be held at intervals no more frequently than every two years. The Proceedings of Seminars and Technical Conferences and Selected Reports of the Advisory Board Meetings will be published by the IHB.

### **7. REPORTING**

The Advisory Board shall report to the IHO, IAG and the IOC on its activities at least once each year and at Conferences/General Assemblies of each Organization.

### **8. AMENDMENTS**

Amendments to these Terms of Reference may be proposed and considered by the Advisory Board at any time. A review of the Terms of Reference shall be carried out at least every four years. Proposed amendments, recommended by the Board, must be approved by all parent Organizations.



**25 July 2004**

## **Treaty between the Government of Australia and the Government of New Zealand establishing Certain Exclusive Economic Zone and Continental Shelf Boundaries**

### **Introduction**

1. On 25 July, the Foreign Ministers of Australia and New Zealand signed the "Treaty between the Government of Australia and the Government of New Zealand establishing certain Exclusive Economic Zone and Continental Shelf Boundaries". The signing ceremony brings to an end several years of negotiation, and definitively settles the maritime boundaries between the two countries in the Tasman Sea and adjacent areas of the south-western Pacific Ocean.

### **What does the Treaty do?**

2. The Treaty establishes and describes the boundary lines between Australia's and New Zealand's exclusive economic zones and continental shelf. The "exclusive economic zone" and the "continental shelf" are legal concepts describing particular maritime spaces.

3. The exclusive economic zone (EEZ) is the area extending out 200 nautical miles (M) from the coast, including both the sea and the seabed. It is measured from the baseline of the territorial sea, generally the low water line. Within the EEZ, the coastal State has sovereign rights in accordance with the United Nations Convention on the Law of the Sea (UNCLOS) over the living and non-living resources of the sea and the sea-bed.

4. The continental shelf is the sea-bed and the subsoil beyond the territorial sea out to 200 nautical miles from the coast or, where the "natural prolongation" of the land territory extends beyond that limit, to the outer edge of the continental margin. This is defined by UNCLOS according to a complex formula, but in no case can it extend beyond the greater of 350 nautical miles from the baseline or 100 nautical miles from the 2500m isobath (a line connecting all points lying at a depth of 2500 metres). On the continental shelf, the coastal State exercises sovereign rights over the non-living resources and sedentary living organisms (such as sponges and molluscs).

5. The continental shelf as a legal concept existed before UNCLOS although its outer limit was not defined with precision prior to UNCLOS. The EEZ was a new legal concept developed during the UNCLOS negotiations. Those countries, including Australia and New Zealand, that had entitlements under the pre-existing continental shelf regime argued successfully in the negotiations that their continental shelf entitlements should not be subsumed under, or limited by, the new 200-nautical mile EEZ regime. Where the continental shelf constitutes the natural prolongation of the land territory of the coastal State, the entitlement extends to the outer edge of the continental margin. Precise legal descriptions of the rights and obligations of states with respect to the EEZ and the

continental shelf are set out in UNCLOS.

### **Why was it necessary to conclude the Treaty?**

6. The fixing of maritime boundaries provides certainty of jurisdiction where the legitimate maritime claims of neighbouring states overlap. UNCLOS prescribes that such delimitation 'shall be effected by agreement on the basis of international law ... in order to achieve an equitable solution'.

7. As a general principle, States that possess extended continental shelf (that is, continental shelf beyond 200 nautical miles) must submit information within a particular timeframe to the Commission on the Limits of the Continental Shelf ('the Commission'), established under UNCLOS. Australia will make its submission to the Commission towards the end of this year, while New Zealand is scheduled to do so in 2006. The Commission considers the information from the coastal State and makes recommendations to it. The limits of the continental shelf established by a coastal State on the basis of the Commission's recommendations are 'final and binding'.

8. Establishment of agreed boundaries to the continental shelf by Australia and New Zealand ensures that both countries will be supportive of each other's forthcoming submissions to the Commission. Australia will be lodging its submission towards the end of this year, while New Zealand is scheduled to do so in 2006.

### **What benefits will the Treaty bring?**

9. The Treaty confirms the median line boundary between the overlapping EEZs that has been observed de facto by the two countries for more than two decades, and thus gives certainty as to the extent of these zones. The zones generated by Norfolk Island (Australia) and Three Kings Islands (New Zealand) in the north, and by Macquarie Island (Australia) and Auckland and Campbell Islands (New Zealand) in the south, overlapped by a small amount.

10. The Treaty establishes the boundary between the areas of continental shelf beyond 200 nautical miles claimed by Australia and New Zealand in the Tasman Sea and adjacent areas of the south-western South Pacific and Southern Oceans. Each country will also exercise sovereign rights over additional areas of continental shelf beyond 200 nautical miles outside the areas covered in the negotiations.

11. The establishment of these boundaries will provide both countries with certainty of jurisdiction over the relevant offshore resources within their boundaries. For fisheries, the certainty of jurisdiction that flows from finalisation of the boundaries will provide a better basis for the joint management by the two countries of any stocks shown to occur in the vicinity of the boundaries. For petroleum and other mineral or biological resources of the seabed, finalisation of the continental shelf boundaries will create certainty of jurisdiction for issuing of exploration and extraction licences.

## **What kind of jurisdiction do the two countries have over the continental shelf?**

12. Under UNCLOS, a coastal State exercises 'sovereign rights for the purpose of exploring' the continental shelf and "exploiting its natural resources". The natural resources of the continental shelf are defined as consisting of the "mineral and other non-living resources of the sea-bed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the sea-bed or are unable to move except in constant physical contact with the sea-bed or subsoil." This includes organisms such as sponges and molluscs.

## **Are there hydrocarbon deposits on the continental shelf subject to the Treaty?**

13. The hydrocarbon potential of most areas of continental shelf beyond 200M that have been delimited by the Treaty is largely unknown, but in general, is not likely to be high.

14. The areas are generally deep, usually 1500-5000 metres, and often have a thin sedimentary section.

15. The areas delimited by the Treaty are remote from existing infrastructure and markets and would be expensive to develop.

16. Because of these factors these areas are poorly explored. Even where data from reconnaissance surveys show zones of relatively thick sediments, factors that control the formation and entrapment of hydrocarbons such as the distribution of source and reservoir rocks and thermal history are unknown.

## **How was the Treaty negotiated?**

17. The negotiations were launched in 1999, when the two countries agreed to conclude an agreement "no later than 2003" on the delimitation of their maritime zones.

18. The Australian negotiating team was led by officials from the Department of Foreign Affairs and Trade, and included officials from the Attorney-General's Department, Geoscience Australia and from time to time representatives of Tasmania, New South Wales and Norfolk Island.

19. The New Zealand negotiating team was led by officials from the Ministry of Foreign Affairs and Trade and included officials from Land Information New Zealand, technical advisers from the National Institute of Water and Atmospheric Research, the Institute of Geological and Nuclear Sciences and the Naval Hydrographer's Office, and external legal advisers.

20. The delegations met on eight occasions, and concluded negotiations ad referendum (subject to approval by their respective Governments) in April 2004.

### **What were the main issues that arose in the negotiations?**

21. UNCLOS requires that the delimitation of overlapping maritime jurisdictions 'shall be effected by agreement on the basis of international law ... in order to achieve an equitable solution'. There is a significant body of international precedent for maritime delimitation. Each delimitation negotiation is, however, unique, and what may be an equitable result will depend on an analysis of all the relevant circumstances.

22. During negotiations, the relevant issues included the relative length of coastlines, the effect of islands, and the distances from relevant coastlines, as well as geomorphological factors such as natural prolongation and the legal and technical case for connectivity of the continental shelf.

### **Why are the lines drawn as they are?**

23. The boundary has two discrete parts: one in the north dividing Australia and New Zealand EEZs and continental shelf in the region extending from Lord Howe Rise, past Lord Howe and Norfolk Islands to Three Kings Ridge (described in Article 2); and the other in the south separating the EEZs and continental shelves between Macquarie Island and Campbell and Auckland Islands (described in Article 3). Three maps depicting the lines are attached to the Treaty as Annexes 1, 2 and 3. The map attached to this document is that shown in Annex 1 to the Treaty.

24. The northern line begins at the intersection of the outer limit of the continental shelf beyond 200 nautical miles with an arc drawn 350M from Norfolk Island. It then runs south-westerly to the northernmost point of Three Kings Ridge, and then southward along the western margin of the Three Kings Ridge until it meets the line of equidistance between Phillip Island (lying off Norfolk Island) and the Three Kings Islands, which it follows in a south-westerly direction to the point where the two EEZs diverge. It then turns westerly and north-westerly along the outer limit of the EEZ generated by Phillip Island until its intersection with the parallel of latitude 31° 30' S, from where it proceeds south-westerly to the intersection of the outer limit of the EEZ generated by Ball's Pyramid (lying off Lord Howe Island) with the parallel of latitude 32° 30' S. The line then follows that outer limit south-westerly to its intersection with the line of equidistance between the Australian and New Zealand mainlands giving half-effect to Three Kings Island. It then proceeds south-easterly to intersect an arc drawn 350M from Ball's Pyramid, before running south-westerly along that arc to its intersection with the mainland equidistance line, thence south-westerly along that line to a point beyond the furthest extent of continental shelves of both countries.

25. The southern line begins north of Macquarie Island on the outer limit of Australia's EEZ at a meridian of longitude slightly west of the furthest possible extent of the area of continental shelf beyond 200M from both countries, runs east along that outer limit and

then south-east along the equidistance line between Macquarie Island (Australia) and Campbell and Auckland Islands (New Zealand). From the southernmost point of overlap, it resumes a southerly course along the outer limit of Australia's EEZ, to a point on that line where it diverts to the south-east for a short distance to divide equally a small area of continental shelf beyond 200M from both countries.

26. The boundary described in the Treaty is a common maritime boundary dividing both the EEZ and continental shelf of the two countries. It is a fair and equitable outcome in accordance with the principles of international law. Norfolk, Lord Howe and Macquarie Islands would continue to generate full 200M EEZs and 200M continental shelves except in areas where the zones of the two countries meet, in which case the boundary has been agreed as a line of equidistance. Where the agreed boundary runs along the outer limit of Australia's EEZ, those parts of the boundary divide Australia's EEZ from that part of New Zealand's continental shelf that is beyond 200M from New Zealand.

27. Parts of the boundary relating to the delimitation of areas of continental shelf beyond 200M do not, however, run along the equidistance line. It is consistent with international law and practice that in some circumstances, an isolated island of one country (lying between the mainland of that country and that of another country) is given a reduced weight in delimiting maritime boundaries between those two countries. This factor particularly affects Lord Howe and Norfolk Islands, the latter of which lies closer to New Zealand than to the Australian mainland. Thus, the boundary dividing the area of continental shelf beyond 200M located between Lord Howe Island and mainland New Zealand is drawn in such a way as to give less than full weight to the coastline of Lord Howe Island (Balls Pyramid). In relation to the Three Kings Ridge, the proposed boundary line is drawn so as to leave most of the Ridge under New Zealand jurisdiction. This is because the natural prolongation from New Zealand's North Island to the Three Kings Ridge is more obvious than that from Australia's Norfolk Island, and hence the legal and the technical case for its connection with Three Kings Ridge is more straightforward.

28. There are two small areas of overlapping continental shelf beyond 200M from the Australian and New Zealand coastlines in the vicinity of Macquarie Island and Auckland Island. One of these areas is placed under New Zealand jurisdiction and jurisdiction over the other is divided equally between Australia and New Zealand.

### **Will the Treaty create new financial obligations?**

29. There are no financial implications for either country resulting from the conclusion of the Treaty or directly arising from it.

### **Does the Treaty provide for withdrawal?**

30. Treaties establishing permanent boundaries, including maritime boundaries, generally do not contain provisions relating to amendment or withdrawal. The Treaty is consistent with this practice. Amendment or withdrawal would still be possible provided both

Parties consented.

### **What further boundary treaties need to be negotiated?**

31. Australia and New Zealand have yet to delimit the maritime spaces off their respective Antarctic territories, but otherwise have now settled all maritime boundaries between them.

32. Australia has still to conclude maritime boundary treaties with East Timor, France and Norway.

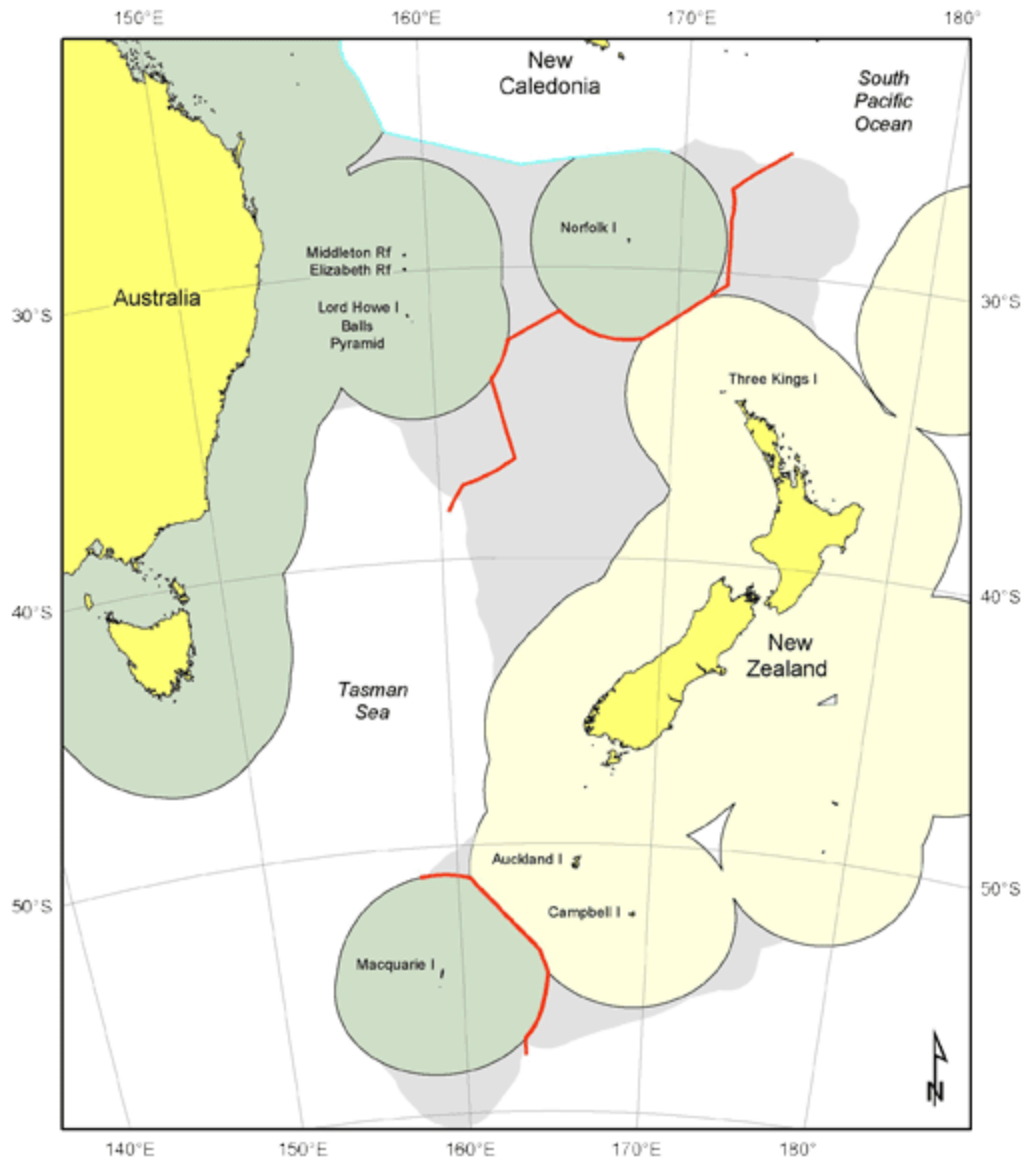
33. New Zealand has still to conclude maritime boundary treaties with Fiji and Tonga.

### **Reference**

[http://www.foreignminister.gov.au/releases/2004/fa112a\\_04\\_bg.html](http://www.foreignminister.gov.au/releases/2004/fa112a_04_bg.html)



# Australia - New Zealand Maritime Boundary



**Legend**

- Treaty boundary
- Australian Exclusive Economic Zone
- New Zealand Exclusive Economic Zone
- Australia-France treaty boundary
- Indicative Extended Continental Shelf areas relevant to this treaty



Projection: Albers equal-area  
 Centre Meridian: 165° E  
 Standard Parallel 1: 40° S  
 Standard Parallel 2: 30° S  
 Datum: ITRF2000 @ 1 Jan 2000  
 Map produced by Geoscience Australia  
 MF 02960 31 Sa



**Land Information**  
New Zealand

## Quality Assurance of a Maritime Boundary

**Don Grant**  
Acting Surveyor-General, Land Information NZ  
www.linz.govt.nz  
www.govt.nz

**ABLOS Meeting**  
**Canberra**  
**18-20 October 2004**

Slide 1

**Land Information**  
New Zealand

## Presentation Outline

- ❑ **Checking Methodology**
- ❑ **Categories of error**
- ❑ **Categories of check**
- ❑ **Forward & Reverse Calculations**
- ❑ **Tools & Data Formats**
- ❑ **Australia - NZ Boundary Example**
- ❑ **Verification of Marzone Software**

Slide 2

**Land Information**  
New Zealand

## Checking Methodology

- ❑ **Derived from software testing**
  - ◆ Previously developed and applied to Ethiopia-Eritrea Boundary calculations
- ❑ **Identify potential errors**
  - ◆ End to end
    - Not just calculation
    - Includes publishing of results
- ❑ **Identify checks to cover those errors**
- ❑ **Build matrix to confirm completeness**
  - ◆ Confirm that every error is checked

Slide 3

**Land Information**  
New Zealand

## Check Matrix

	Error 1	Error 2	Error 3	Error 4	Error 5	Error 6	Error 7
Check 1	☞				☞		
Check 2		☞	☞			☞	
Check 3			☞	☞			
Check 4							☞

Slide 4

**Land Information**  
New Zealand

## Categories of Error

- ❑ **Source Data**
- ❑ **Calculation**
  - ◆ Data Entry
  - ◆ Processing method
  - ◆ Results transformation
  - ◆ Misinterpretation of requirements
- ❑ **Software**
  - ◆ algorithm
  - ◆ bug
  - ◆ fundamental parameters/constants (eg datum)
- ❑ **Publishing**
- ❑ **Etc**

Slide 5

**Land Information**  
New Zealand

## Categories of check

- ❑ **Independent Software**
- ❑ **Digital transfer of data from one stage to the next**
- ❑ **Independent agencies carrying out processing**
- ❑ **Reverse calculation**
  - ◆ Use the answers to calculate the controlling parameters
- ❑ **Etc**

Slide 6



## Forward & Reverse Calculation

- **Forward**
  - ◆ Marzone used to calculate boundary points
  - ◆ Very complex calculations
- **Reverse**
  - ◆ Use the calculated points as input
  - ◆ Calculate distances to basepoints
  - ◆ Calculate geodesics between points
  - ◆ Calculate the distance of other points from these geodesics
  - ◆ Relatively straight-forward geodetic calculations

Slide 7

## Tools & Data Formats

- **Software**
  - ◆ Standard geodetic computations (geodetic distances, geodesics, area)
  - ◆ Completely independent software
- **Format**
  - ◆ An XML format was developed
  - ◆ Contains the instructions for the calculations
  - ◆ Reads the data files and runs the calcs
  - ◆ Can run against final published coordinates

Slide 8

## Australia - NZ Boundary

- **Types of check applied**
  - ◆ **Equi-distant**
    - Calculate distance to all Aust basepoints
      - Identify minimum distance (A)
    - Calculate distance to all NZ basepoints
      - Identify minimum distance (B)
    - Confirm  $A = B$  (within a specified tolerance – 1m)
  - ◆ **Arc**
    - Calculate distance to all basepoints (NZ or Aust)
      - Identify minimum distance (C)
    - Confirm  $C = 200\text{ M}$  (or  $350\text{ M}$  as applicable)
  - ◆ **Etc**

Slide 9

## Verification of MarZone

- **All Marzone calculations confirmed by completely independent LINZ geodetic software**
- **Tests confirmed both correctness and completeness of solutions**
  - ◆ ie no missing points

Slide 10

## VERTICAL REFERENCE FRAMEWORK

### 1. European Combined Geodetic Network (ECGN) Working Group.

Steve Shipman, PAH attended an ECGN Meeting held at the Bundesamt für Kartographie und Geodäsie (BKG) in Frankfurt on 4/5 September 2003

Background: The International Association for Geodesy (IAG) Sub-commission for Geodetic Networks in Europe (EUREF), which has as its principal task, the provision of European-wide solutions of a spatial reference system for geo-referencing data has, since 1995, also had the task of realizing and maintaining European vertical reference systems. This has included the establishment of the 'United European Levelling Network' (UEN [95/98]) and the 'European Vertical Reference Network' (EUVN). The latter has brought together: GPS, levelling, tide-gauge and gravity observations. In 2002 EUREF and the International Geoid and Gravity Commission (IGGC) jointly set up the European Combined Geodetic Network (ECGN) with the intention of realizing an integrated kinematic reference system for Europe. The first meeting of the ECGN working group took place at the Federal Agency for Cartography and Geodesy in Frankfurt, Germany from 4 – 5 September 2003. Whilst this group is very much focused on Europe it is considered, along with other regional programmes, to be an essential pre-cursor to a 'Worldwide Height System'.

1<sup>st</sup> Meeting: The meeting took place in the splendid 'Villa Mumm' at the BKG, originally built in 1902 for the Mumm Champagne Family. The primary task on the first day was to review and agree on the standards to be met for Space Observations, (GPS, GLONASS, *GALILEO* and Laser), Gravity Observations (Super-conducting and Absolute), Levelling, Tide-gauges and other observations.

It was agreed that tide-gauge observations must satisfy the general recommendations of the International Oceanographic Commission (IOC) in order to fulfil the standards of the international sea-level centres, networks and services such as the Permanent Service for Mean Sea Level (PSMSL), European Sea Level Service (ESEAS) and the Global Sea Level Observing System (GLOSS). Special attention has to be applied to the regular fixing of the tide-gauge to ensure the necessary long-term stability and reliability of the measurements. Height differences between the tide-gauge contact point, tide-gauge benchmark, GPS benchmark and possibly other benchmarks should be established at least annually. It was further recommended that all participating tide-gauge stations should be part of the GPS Tide-Gauge Benchmark Monitoring Pilot Project (TIGA-PP). Having agreed on the standards, agreement was then reached on the criteria for assessing proposals for participation in the project.

The second day was spent reviewing those proposals already received (71 in number). Assistance and advice would be provided to those countries / stations which did not currently meet the required standards. There is no cut-off date for participation and stations could join the network as and when they fulfilled the criteria. Members of the WG would actively seek participation from further stations in Belgium, Croatia, France, Hungary, Iceland, Ireland, Netherlands, Romania, Scotland, Slovakia, Slovenia and Turkey where it was considered that there was an insufficient density of stations. The remainder of Day 2 was spent looking at the requirement for a 'Meta

Data' database and how the second call for participation, to look at processing and analysing the data, might be handled.

2<sup>nd</sup> Meeting: The meeting took place at the European Centre for Geodynamics and Seismology (ECGS), Luxembourg on 17 and 18 May 2004. PAH was unable to attend this meeting due to other commitments. Progress since the first meeting was reviewed and preparations for the 2<sup>nd</sup> Call for participation in the project discussed. The minutes of the meeting and other useful information can be found at:  
<http://gibs.bkg.bund.de/ecgn/index.html>

## 2. IAG Inter-Commission Project (ICP1.2) on Vertical Reference Frames

The IAG have created a new Project shared between Commissions 1 and 2 to look at the development of a unified global reference frame. Dr Johannes Ihde, who also chairs the ECGN, chairs this project. The first meeting is scheduled for 31 August 2004 in Porto in the sidelines of GGSM2004. PAH is unable to attend this meeting. Details of ICP1.2 can be accessed from the ECGN web site, see section 1 above.

## 3. FIG Commission 4 (Hydrography)

Commission 4 met in Athens in May 2004 as part of the FIG working week. A separate meeting of Commission 4's WG 4.2 on Vertical Reference Frames was held (at 0730 in the morning such was the busy schedule!). This discussed the way ahead on the paper that had been produced by Ruth Adams (UKHO) and Ahmed El-Rabbany of Ryerson University. Minutes of this meeting and other useful documents are available from <http://www.fig.net/figtree/commission4/index.htm> . A workshop was held on Tuesday 25 May and the 3<sup>rd</sup> session from 1600-1730 was devoted to Vertical Reference Frames and Marine Construction/Dredging. The presenters of the two papers on Marine Construction / Dredging did not appear leaving plenty of time for a very lively discussion on the presentations on Vertical Reference Frames from Ruth Adams and Steve Shipman; indeed the discussion had to be adjourned to the bar when the room was required by another group at 1800. One of the major benefits of this workshop was that it brought together hydrographers and geodesists and emphasised the fact that they tend to speak two different languages!

SAC SHIPMAN

Professional Assistant Hydrography

## MEETING OF THE TALOS EDITORIAL COMMITTEE

Geoscience Australia, Canberra

October 18, 2004

### Present

Chris Carleton  
Ron Macnab (chairman)  
Steve Shipman  
Shin Tani

### Introduction

The meeting was called to review progress since the March 29 gathering, and to discuss the tasks that still needed doing in order to complete the Fourth Edition of the TALOS Manual.

### Points of discussion and decisions

#### *Text files ready for distribution*

Ron began by thanking Committee members for their contributions to date, which made it possible for him to come to the meeting with the latest set of revised Word files for the Preface, for Chapters 1 to 6, and for Appendix 4. Changes were tracked in all files. If no further revisions were handed in during the course of the meeting, Ron proposed to accept all tracked changes and to distribute copies of all files to each chapter editor for further attention as outlined in the section that follows.

Steve indicated that following the meeting, he would revise the Preface to reflect the present discussion. Ron pointed out that Chapter 1 still required introductory paragraphs for geodesy and hydrography, and that he would ask members Lars Sjoberg and Carlo Dardengo to submit those portions of text at their earliest convenience. Lars's travel schedule precluded his participation in the meeting, however he arrived afterwards with a newly-revised file for Chapter 2, which replaced the version held by Ron.

#### *Tasks for chapter editors*

Text. Editors were asked to give their revised chapters a 'final' once-over with a view to correcting minor errors and omissions, and to submit revised texts to Steve.

Graphics. It was estimated that the new Manual would contain about 40 figures. It was agreed that the final product would be more attractive, and that it would have a more professional appearance, if all figures were constructed in a modern, consistent style, using colour where appropriate. Chapter editors were asked to review all the graphics in their respective chapters, recommending one of the following actions for each figure: (a) elimination where no longer relevant; (b) simple re-drafting to conform to the Manual's overall style; (c) modification to improve clarity and/or meaning; and (c) total replacement with something more suitable. Editors were also asked for suggestions for new figures. Embedded labels should be avoided to forestall potential difficulties when translating the Manual into French and Spanish. Suggestions for modified and new figures should be

forwarded to Steve, accompanied by annotated copies of their original chapter figures, or examples/sketches of new figures (borrowing material from existing reports and publications was not ruled out, as long as attribution and copyright issues could be dealt with). Figure captions also need review and revision as appropriate, with texts submitted to Steve. The construction of new graphics was not decided upon, but a possible means was discussed – see below.

Glossary. Editors were asked to review their chapters to identify terminology that should be included in the Glossary. Terms so identified should be forwarded to Steve, accompanied where possible by definitions extracted from authoritative sources.

Citations/Bibliography. Editors were asked to provide Steve with full bibliographic references for all citations that appear in their chapters. Also, they were asked to review the existing Bibliography, suggesting the insertion of modern references and the deletion of dated entries. Recommendations in this respect should be forwarded to Chris, who offered to take care of the Bibliography.

### *Index/Table of Contents*

It was agreed that the Manual would not include a printed subject index. Instead, users of the digital PDF (Portable Document Format) version could use the Adobe search feature. The Manual would have a master Table of Contents, supplemented with a more detailed Table in each chapter. Steve indicated that he has already formatted several of the latter, and that he would look after the remaining.

### *Proposed chapter on digital methodologies*

After some discussion, it was decided not to pursue this idea on account of: (a) the time and effort it would require; (b) the risk of appearing to endorse certain products; and (c) the speed with which the subject matter would become outdated. It was pointed out that review articles or papers may already exist on this topic, and these could be listed in the Bibliography.

### *Construction of new figures*

Shin offered to inquire about the availability of funding that would support the professional construction of an entirely new set of figures for the Manual. He would pursue the question upon returning to Japan. He expected that an answer in principle could be forthcoming in as little as two weeks. If the response were positive, it would be necessary to prepare a set of technical specifications and a package of sample or draft diagrams for inclusion in a contract document. If this material could be made available to Shin by the end of November, he estimated that production could begin by mid-January, and that the job could take about two months. He also considered that it might be feasible to extend this funding arrangement to underwrite the cost of printing the Manual commercially. Further action and decisions on these topics were deferred, pending feedback from Shin.

### *Future revisions to the Manual*

This is a downstream concern, but it was recognized that the procedures employed in the preparation of the Fourth Edition of the Manual could hinder or facilitate future efforts to

maintain or upgrade the document. The idea was broached of maintaining the new Manual as a ‘live’ edition, which could be periodically updated for several years prior to the preparation of a Fifth Edition. This would be a relatively straightforward proposition, given the digital nature of the text and diagrams. One way to treat this would be to revise the document once a year according to need, perhaps in the aftermath of the annual ABLOS Business Meeting. If this were acceptable to ABLOS, then it would be reasonable for the present TALOS Committee to remain standing, so matters could be dealt with as they arose.

### *Work plan and timetable*

The following was considered as achievable, barring unforeseen difficulties and circumstances:

#### October 31, 2004

Instructions forwarded to chapter editors concerning the specific tasks as outlined above.

#### November 15, 2004

Feedback sent to Steve concerning ‘final’ text revisions and suggestions concerning graphics, glossary items, citations, and bibliographic entries. Begin text revision and packaging.

#### November 30, 2004

Graphics specifications sent to Shin, subject to the response he receives concerning support for a contract to create a new set of illustrations.

#### January 15, 2005

Assuming graphics contract is approved and in hand: begin constructing new illustrations.

#### March 15, 2005

Illustrations and text revisions completed, commence merging.

#### April 15, 2005

Final draft completed and approved by Editorial Committee, submitted to IHB for circulation to IHO Member States with request for review and comment.

#### June 15, 2005

Manual posted on IHB website, also available for distribution on CD, and in print-on-demand paper copy where requested.

### *Acknowledgements*

Committee Members thank staff of Geoscience Australia for their kind hospitality in providing a meeting room and other facilities.

# **SURVEY RESULTS: THIRD BIENNIAL ABLOS CONFERENCE**

Monaco, October 28-30, 2003

**Ron Macnab**

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October 14, 2004

## **INTRODUCTION**

A questionnaire was distributed at the end of the Conference. Forty-four responses were submitted. Many of the returned questionnaires were only partially completed.

## **ANALYSIS OF RESPONSES**

### **1. What did you like about this year's Conference?**

*The following is a representative sampling of responses. Several were offered more than once. In general, respondents liked the range and diversity of topics, and had good words for the running of the Conference.*

Controversial topics  
Actual issues, professional presentations  
Diverse crowd  
Interesting learning experience  
Variety of subjects  
Merging of law and science  
Perspectives expressed by experts  
International, interdisciplinary  
Split between tutorial and plenary sessions  
Provocative  
Fast moving, good technical content  
Useful tutorials  
Quality of presentations  
Well balanced between law and science  
Change from past 'theoretical' focus to 'practical'  
Improved organization and punctuality  
Some creative presentations

### **2. Where do you think improvements would be desirable?**

*The following is a representative sampling of responses. Several were offered more than once. In general, respondents would have preferred more opportunities for discussion and audience interaction. For some, the cramped facilities left something to be desired. Others expressed the desire to receive copies of the proceedings at an earlier date, ideally at the beginning of the Conference.*

More technical discussion  
A more robust overview for first presentation  
More room, more reliable projection system  
Shorter presentations, more time for discussion

More space  
Faster access to proceedings  
More 'state' presentations and how UNCLOS is affecting them  
Tighter focus on specific theme  
Panel discussions on controversial topics  
Poster presentations  
Presentations available in soft copy  
More time for certain papers  
Different venue  
More 'difficult issues' in tutorial sessions  
Try again for vertical datums  
Blocks of time for Q/A, discussion  
Too much emphasis on Article 76, same speakers as in previous meetings  
Include selected graphics with abstracts  
Better conference facilities  
Better grouping of topics, larger room  
Some speakers need training  
Some topics already covered in other meetings

### **3. Tuesday's tutorial presentations**

(A) Did you find them useful/informative?

Yes - 37      No - 2

*Some felt the tutorials could have better reflected the 'difficult issues' theme.*

(B) Were they too long or too short?

Yes - 5      No - 33

*Opinion was split on whether presentations were too long or too short.*

(C) Could you suggest a different format?

*Most respondents felt the format was fine, but some had useful suggestions.*

More discussion and debate  
Scope for increased audience interaction  
Shorter introductions and more audience contributions  
Schedule apart from ABLOS conference  
Make participation optional  
Better data visualizations  
Panel discussions  
Hands-on computer sessions  
Half-day only

(D) What topics would you like to see addressed in future tutorial sessions?



*Respondents offered a wide variety of suggestions that were both contradictory and complementary.*

More state speakers describing national experiences  
Annex II and the CLCS  
Successful resolution of boundary disputes  
Software demonstrations  
Straight baselines  
Practical solutions to boundary problems  
Environmental and fishery issues  
ITLOS  
CLCS rules, accountability and transparency  
All aspects of Article 76  
Project teams to construct hypothetical outer limits  
Geophysics (mag & grav)  
Overview of countries' status  
Case studies  
Survey techniques and issues  
Survey rights in EEZ  
Maritime zone protection  
Hydrographic aspects  
Geopolitical aspects of boundaries  
Coastal state rights in EEZ and continental shelf  
Basic UNCLOS  
How coastal states can solve technical problems arising from UNCLOS  
Topics that focus on interactions between law and science

#### **4. Wednesday's and Thursday's plenary presentations**

(A) Were you satisfied with the scope and depth of presentation?

Yes - 39      No – 0

*It's hard to believe that no one was dissatisfied. Perhaps some non-respondents were unhappy and couldn't be bothered to express their views?*

(B) List topics that you'd like to see addressed in the next Conference.

*The following is a representative sampling of responses. Several were offered more than once. Also, there appears to be some overlap between this list and the one relating to future tutorial topics (Question 3 above). Article 76 remains a contentious topic – some want more, some have had enough.*

Fishery issues  
Hydrocarbon/mineral extraction  
Safety at sea  
EEZ obligations – extent of compliance  
Part XIII – Marine Scientific Research  
UNCLOS and global warming  
UNCLOS amendment provisions

Article 76 overview  
 Article 76 case studies  
 Bilateral boundary negotiations  
 All aspects of Article 76  
 Russian submission  
 Survey techniques and issues  
 Hydrographic aspects  
 Coastal state rights in EEZ and continental shelf  
 Boundary case studies

## 5. Conference arrangements

<i>Question</i>	<i>Yes</i>	<i>No</i>
(A) Was the location (Monaco) OK?	40	2
(B) Was the duration (three days) OK?	40	4
(C) Were you kept adequately informed before the Conference?	34	10
(D) During the Conference?	42	0
(E) Were registration arrangements satisfactory?	42	1
(F) Were facilities satisfactory?	33	11
(G) Would you prefer additional social functions?	13	29

## 6. General comments

*Overall, the general comments were highly positive and complementary. Some responses, however, alluded to issues that would be worth examining: the following is a representative sampling of these suggestions and observations, some offered more than once. This section also seemed to serve as a convenient place to register comments arising from Question 5.*

Room too small, poor layout  
 Poor visual presentations  
 Exclude or segregate 'commercial' presentations  
 Better access to telephone, Internet  
 Where are members of CLCS?  
 Schedule icebreaker function sooner  
 Simultaneous translation? (French and Spanish)  
 Better travel info: hotels, maps  
 Local info package: finding conference venue, restaurant suggestions  
 Coffee had tendency to run out  
 Faster delivery of proceedings: at opening of conference, if possible

## CONCLUSION

The survey netted a positive set of responses which should be helpful in setting the theme and agenda for the 2005 Conference. If the survey is to be repeated next year, it is recommended that the questionnaire be re-designed to encourage more focused responses from respondents, and to facilitate analysis and interpretation.

## PROPOSED ONE-DAY TUTORIAL ON ARTICLE 76

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*October 23, 2004*

1. Introduction (less than one hour)
  - UNCLOS and Article 76
  - Seabed resources – living and non-living
  - Basic geodetic concepts
    - Ellipsoid and geoid
    - Sea level
    - Loxodromes and geodesics
  - Discussion, Q&A
  
2. Territorial sea baselines, maritime zones, and maritime boundaries (one hour)
  - Normal and straight baselines
  - River mouths
  - Bay closing lines
  - Archipelagic baselines
  - Internal waters
  - Territorial seas
  - Contiguous zone
  - Exclusive Economic Zone
  - Juridical continental shelf
  - Bilateral boundaries – adjacent and opposing coasts
  - Discussion, Q&A
  
3. Measurement and analysis of bathymetry, morphology, and sediment thickness (two hours)
  - Echo-sounding
  - Seismic reflection and refraction
  - Data base and GIS tools
  - Test of appurtenance
  - Foot of slope
  - 2500 metre isobath
  - Gardiner Line
  - Exercises, case studies, and demonstrations
  - Discussion, Q&A
  
4. Formula and constraint lines (two hours)
  - Distance formula
  - Sediment thickness formula
  - 350 nm cutoff
  - 2500 m isobath plus 100 nm cutoff

Exercises, case studies, and demonstrations  
Discussion, Q&A

5. The CLCS and the coastal state's submission (one hour)

Overview of the CLCS  
Rules of procedure  
Scientific and technical guidelines  
Preparing and presenting a submission  
Discussion, Q&A

6. Open discussion (one hour)

Course materials – digital & hardcopy

Workbook  
Maps, sounding/seismic records  
Case studies – real & hypothetical  
Submissions  
PPT files  
Blue Book (Cook & Carleton)  
TALOS Manual  
CLCS docs – Modus Operandi, S&T Guidelines  
SOC/ISBA Report: Non-Living Resources of the Seabed