

The eighth meeting of the APSG was called to order by Mr. Barry Barrs, who introduced the Executive Committee. Mr. Chris Barlett gave a briefing to those present on the safety procedures and ergonomics issues of the Conoco Center, 600 N. Dairy Ashford. The chair then recognized Mr. Tony Maulysby for arranging and hosting this eighth meeting.

The agenda for this meeting was reviewed and accepted. Apologies were received for the lack of minutes from the seventh APSG meeting.

Dr. Phil Summerfield conducted the election for the 2001-2002 Executive Committee. While the ballots were counted, Mr. Barry Barrs extended apologies from Walt Allmandinger, Bruce Carter, Jean-Patrick Gerbez, John Morse, Martin Rayson and Brain Stostich who could not attend. Twenty-one ballots were returned and counted. The results of the 2001-2002 Executive Committee ballot were presented by Mr. Barry Barrs and are:

### **2001-2002 APSG Executive Committee**

Chair		: George Buhler
Vice chair	: Hugh Beattie	
Secretary	: Dean Mikkelsen.	

The newly elected Executive Committee will assume their positions as of the end of this meeting.

At 0852 Hugh Beattie gave a brief update on the Education Committee. No significant progress has been made by the Education Committee, with the Geoforum plans stalling. Mr. Michael Barnes (Vice-chair) will provide an update later in the meeting. Hugh requested additional Education Committee members given Hugh's recent election to the 2001-2002 Executive Committee and Jon Stigant's foreign work commitments.

Mr. Michael Barnes presents a membership update. Membership growth has continued without an aggressive membership drive. Small controlled growth is currently desirable to limit membership size, prevent the need for membership dues and to facilitate the selection of meeting locations. Seven new membership applications have been received and were all approved by two Executive Committee members. Details of the new members are

Dr. Martin Rayson : Managing Director, Quest  
Peter Moreau : Supervisor, Enterprise Mapping and GIS, Anadarko Petroleum Corporation  
Richard Prothero : Survey Manager, Thales Geosolutions  
John Morse : Vice President, Hydrosearch  
Stephen Thomas : Geomatics coordinator, Petro-Canada  
Alan Faichney : Technical Director, Concept Systems Ltd

At 0900 Mr. Barry Barrs asked all members present to introduce themselves, affiliation, position and surveying interest.

A discussion on the status of the two standing Committees (Education and Membership) was headed by the chair. The current Education Committee consists of Jon Stigant (Chair), Hugh Beattie, Martin Rayson and Ken Russell. Of these, Hugh Beattie offered to stand down given his recent election to the 2001-2002 Executive Committee. The status of Jon Stigant as the chair and as a member of the Education Committee was unknown. Both Ken Russell and Martin Ray-

son will continue as Membership Committee members and Norm Berls offered to stand. Michael Barnes offered to assist the Education Committee with logistical support. In summary:

#### **The 2001-2002 APSG Education Committee (No nominated chair)**

Ken Russell  
Martin Rayson  
Norm Berls  
Jon Stigant (?)  
Michael Barnes (Logistical support)

The current Membership Committee consists of Michael Barnes (Chair) and Ron Harwood. Michael Barnes offered to stand down as the Membership chair and committee, while Ron Harwood offered his continued involvement. Barry Barrs and Stewart Evans both offered to stand and Barry Barrs was elected the new Membership Committee Chair. In summary:

#### **The 2001-2002 APSG Membership Committee**

Barry Barrs (Chair)  
Ron Harwood  
Stewart Evans

At 0921 the meeting broke for 9 minutes while the computers were swapped in preparation for Norm Berls presentation. The meeting continued with Mr. Barry Barrs introducing Mr. Norm Berls and recognizing Norm's extensive work on developing the APSG website. The APSG website is currently **not** available via the Internet. Norm started development of the website about 1 year go, after the 6<sup>th</sup> APSG meeting. To date the website contains limited content which include details of the officers, articles of association, minutes of previous meetings and a notification of the next meeting. This information is clearly useful to the current members. However the current content is the main, and significant, limiting factor which needs to be addressed before the website can be made available to the general public. Norm stated that successful websites need to educate the public, promote the website and increase the public's general awareness. The current website does not address any of these goals.

Suggestions have been made at previous meetings on how to introduce additional software related content, which include:

- General software standards
- Data models
- Required precision (Roger Lott has previously suggested 1 cm and 1m for engineering and geophysical applications respectively)
- Algorithms
- Results of software evaluations.

Norm has developed a cartography tutorial for Schlumberger and Geoquest. The tutorial is available at:

<http://hominid.home.texas.net/tutorial>

The tutorial is also available as an Acrobat PDF document and totals some 200 pages in length. The tutorial is being viewed worldwide and has been developed in a low pragmatic style (ie second person, active voice, short simple sentences and paragraphs, abundant

graphics and a “cook book” methodology). Norm is the first to state that this tutorial is not, and was not intended to be, of a high level academic standard.

Mr. Jim Cain reiterated that the APSG needs a presence on the Internet. Mr. Michael Barnes has registered the following domain names: PetroleumSurveyGroup.[Net][Com][Org]. The APSG does not currently have a service provider. Jim stated that the EPSG has a database with a significant number of datum transforms, data models, projections etc. Jim further mentioned that the EPSG initially invited oil companies to share their internally derived datum transforms, which to date have not been widely supplied. The EPSG is still willing to act as a collection and focal point for datum transforms.

Mr. Barry Barrs asks if any member had reservations on listing their names under the member page of the APSG website. There was no negative reaction. A suggestion was tabled to change the membership form so that members can decline to have their name listed on the website. Concern was expressed on the amount of information made available via the website. A listing of E-mail addresses may result in unsolicited spam.

The discussion of how the APSG can write software reviews, particularly in light of potential litigation, was postponed until the afternoon.

Mr. Bish Karko made a request to include a list of URL links as well as a search facility. Barry Barrs offered a word of caution re the overhead associated with maintaining URL links (especially when URLs change). Barry also reiterated that members have previously been asked to provide URLs of useful websites to Norm Berls. Mr. Ken Russell suggested that the number of links could be minimized by linking to universities/colleges who themselves maintain a current list of URLs. Norm stated that web pages contain a header record which contains keywords used by search engines. A list of such keywords would need to be developed, which completed a full circle of discussion re the website content. Norm voiced concerns about providing a comprehensive list of keywords and not providing the substantiating content: this is frequently referred to as a “bait and switch”. Jim Cain suggested that the webpage remain offline until the content is updated.

At 1014 Mr. Hugh Beattie lead a discussion on Position Exchange Formats and in particular how can the APSG influence the formats. Mr. Tony Maultsby described the process by which position data is maintained within databases: typically the header information is stripped out during the initial import phase and held in separate header records. This header data is usually lost or forgotten about during any subsequent export phase. The Western Geophysical surveys acquired in the 1980s were cited as an example where losing the header data introduced confusion and errors. The surveys in question were acquired using non standard UTM central meridians and scale factors (which by and in itself is entirely correct) in areas where standard UTM projections were common. Obvious problems could be introduced when the data is exported without the header data

The common consensus is that the problem is not explicitly associated with the different file formats, but rather the implementation. Bish Karko related this problem as the reoccurring theme of education and awareness. Chuck Lopez offered the suggestion that the APSG website could list a set of minimal requirements for the header records associated with positioning data. This discussion and session was brought to a close at 1032 by Mr. Barry Barrs with the comment that companies need to refuse data sets that are not complete, including the data.

The meeting continued at 1048 with Mr. Barry Barrs introducing Mr. Jim Cain who demonstrated the EPSG database. The EPSG database has been reviewed and signed off on by POSC. Associated documentation lists examples of all the formulae, projections and datum transforms included in the database. Jim provided a review of the EPSG database v6 which includes new terminology from ISO. This latest version also includes the documentation which was previously contained in Guidance Note 7. Jim was asked how to search or query the database. Users need to understand that the codes associated with datums, transforms and projections are included primarily for software vendors. The search capabilities of the database are dictated by MSAC-CESS. The correct use of wildcards (\*) is to enclose the word, ie to search for OMAN, the query command would be \*OMAN\*. The search results are not filtered, so \*OMAN\* will return OMAN and ROMANIAN.

At the October, 2000 EPSG meeting, a working group was formed to address the datum transform between WGS-84 and ED50 between latitudes of 62° and 65° in the North Sea. Jim Cain reported on the working group's finding which have been formally approved by the EPSG and appear in the form of Guidance Note 10. The document is currently not available on the EPSG website.

The chair introduced Mr. Peter Moreau at 1118 who provided an overview of the last EPSG meeting (the overview in turn was prepared by Mr. Roger Lott). The next EPSG meeting is scheduled for the last Friday in October in Copenhagen.

Mr. Derek Salvage presented a report on the Canadian Workshop Initiatives at 1127. These initiatives took the form of a one day workshop and a one day seminar held in Halifax, Nova Scotia, hosted by the Association of Canadian Land Surveyors. Several Canadian provinces are progressing towards the adoption of NAD83 as their official datum. There is a Canadian equivalent of NADCON: NTv2. The main difference is that NTv2 needs to be licensed. ArcInfo includes a module which performs the NAD83 to NAD27 transformation. There are several versions of NTv2 available including network licenses and a developers edition (including source code). Blue Marble's Geographic Calculator contains software hooks to support NTv2.

The chair recognized Mr. Richard Prothero of Thales-Geosolutions who gave a summary of recent AUV working groups. There are four working groups which are being stewarded by Brian Moore (Technosphere) and Keith Vickery (Applanax). They cover:

- Operation and legal issues
- Interfacing of sensors within AUVs
- Data quality of sensors
- Positioning of AUVs.

Richard is involved in the Positioning of AUVs working group, which is developing guidelines similar to the UKOOA use of dGPS guidelines:

- Observation sources
- Adjustment methodologies
- Geodetic concerns
- Hardware and installation
- Calibrations
- Quality measures
- Testing recommendations

Mr. Barry Barrs called the morning session to a close at 1147. The afternoon session was called to order by the chair at 1303. Barry asked if the APSG could play a role in ensuring that software which performs some form of geodetic transformation (ie geographic to map projection co-ordinates) functions properly. Barry has looked back through the minutes of previous meetings. A similar discussion was held during the 3<sup>rd</sup> APSG meeting (November 10<sup>th</sup>, 1998). One of the main concerns is for the most effective method of providing feedback to the vendors. Is there a place for the APSG and/or the EPSG? Mr. Stewart Evans suggested that APSG members can verify problems when they arise and a letter can be sent to the vendor from the APSG. There was general consensus that the combined weight of the APSG would carry more significance with software vendors. For example, ERSI listens to the Petroleum Users Group (PUG). Any problems with ERSI software could be channeled back through the PUG. Dean Mikkelsen cautioned the meeting about the high number of software packages that perform at least one form of transformation. Richard Prothero identified the need to catalog this vast array of software packages into different activities, ie geodetic adjustment, sonar, ray tracing etc etc. Mr. Michael Barnes proposed that Dean Mikkelsen and Richard Prothero start a categorization process and limit the process to commercial software. Norm Berls suggested members keep track of the version number, of both engines and end products. Phil Summerfield further suggested the use of the EPSG database and guidance note as a formal testing procedure. Mr. Barry Barrs suggested the preliminary work should be performed before the next meeting.

At 1334 Mr. George Buhler was introduced who discussed the use of NADCON within the Gulf of Mexico (GoM). John E. Chance derived 3 parameters geocentric shifts for three regions of the GoM (East/Central/West) in the early to mid 1980s. NADCON is the official Federal Standard for NAD27 to NAD83 datum transformations. The NAD27 datum is poorly defined in the GoM. The NGS quotes an accuracy of better than 5.0 meters for near coastal regions. In offshore waters NAD27 is undefined. BP's GoM experiences have been with different contractors and vendors who used different datum shift parameters, ie JECA, CONUS etc. BP has decided to move to a common datum shift (NADCON). However there is a considerable impact on the legacy datasets. George has conducted a survey of the main survey contractors within the GoM to determine the acceptance of NADCON offshore GoM:

- Dale Lipps (Thales-Geosolutions): Adopted NADCON from mid-2000.
- Lionel Cormier (JECA-Fugro): Implemented NADCON on January 1<sup>st</sup>, 2001
- Ralph Coleman (C&C Technologies): NADCON implementation if under consideration.

There was a common view that geophysical contractors and vendors do not fully support NADCON. NADCON may be used as a standalone utility to derive local co-ordinates for a survey boundary and the prospect center. An equivalent 3 parameter geocentric shift is then derived. There is concern that this approach is not fully reversible. There is a desire for all contractors and vendors to fully support NADCON. George Buhler is mainly concerned with a consistency. These statements are not designed to state that NADCON is more appropriate than JECA or CONUS, but the full adoption of NADCON would provide consistent and reversible datum shifts across the whole GoM.

At 1405 Mr. Jim Cain discussed the Ultra Wide Band (UWB) proposal that has already been made to the FCC. UWB transmissions use pulse position modulation (pulses per nanosecond). The proposal calls for consumer UWB devices to operate in currently restricted frequency bands, including GPS, PCS and ASR. Test data indicates serious interference of GPS by UWB transmissions: 88% of test cases showed interference for UWB power levels below FCC Part 15 levels. GPS receivers are highly sensitive to the UWB spectral line structure. Jim makes an offer to make the letter sent from National Ocean Industries Association (NOIA) to the FCC available to the APSG. Mr. Stewart Evans proposes that the APSG Executive Committee send a similar let-

ter to the FCC. This proposal was seconded by Mr. Derek Salvage. Jim Cain will draft a letter and forward it to the new Executive Committee.

Dean Mikkelsen discussed the different flavors of the WGS-84 datum at 1417. There are several government agencies who have specified datums which are similar, but not identical, to the WGS-84 datum. There are official datums based on these quasi-WGS-84 datums as well as non standard datum transformations, ie modified Molondenski. Jim Cain stated that the EPSG database does include datum shifts of (0, 0, 0) so that a change of datum can be performed where the two datums are essentially identical. For example, for the majority of applications, the different flavors of ITRF and WGS-84 can be considered coincident. Dean asked how other software vendors support such "non-standard" WGS-84 datums. Jim Cain revisited the offshore Norwegian datum shifts adopted by the Statens Kartverk between latitudes 62° and 65° North. The original complex methodology was mandated by the Statens Kartverk. However a group of oil companies and operators approached the Statens Kartverk with a request to change this methodology. The results have already been discussed and are contained in the EPSG Guidance Note Number 10. Mr. Chuck Lopez suggests that the support of "non-standard" datum shifts be incorporated in the categorizing effort being lead by Dean Mikkelsen and Richard Prothero.

Mr. Barry Barrs called this session to a close at 1444 and called the meeting back to order at 1517, with a group photograph. The chair introduced Mr. Michael Barnes to discuss the GeoForum. Previously Michael has had several discussions with the GeoForum regarding the "Geodesy for Geoscientists" seminar. There was a lot of initial support from the GeoForum, but the momentum has been lost due to the workload and that the GeoForum's Head of Facilities (Wayne Dunlop) retired. A "Geodesy for Geoscientists" seminar will promote the APSG within the industry as well as provide a great catalyst for self-promotion. There followed a discussion on how we can implement a GeoForum presentation. Michael offered to provide logistical support to the Education Committee and has secured \$6,500 to underwrite the forum. Michael further challenged the members present to identify at least three geoscientists who would benefit from attending such a seminar. The chair asked the meeting for agreement to proceed with the GeoForum, including contributing the time required to develop the presentations etc. The members present agreed to proceed with the GeoForum seminar. The tentative date was discussed and October 19<sup>th</sup>, 2001 was chosen. Dale Lipps and Phil Summerfield were nominated to act as focal points for the GeoForum seminar with George Buhler as a backup.

At 1603 the chair summarized the action items from this meeting:

- Members to forward useful URL addresses to Norm Berls.
- To finalize the minutes from the 7<sup>th</sup> APSG meeting (Point of contact: Mr. Michael Barnes)
- Richard Prothero and Dean Mikkelsen will start categorizing software applications which perform geodetic transformations.
- Jim Cain will draft a letter to the FCC on the use of UWB transmissions and forward it to the new Executive Committee.

The date and location of the 9<sup>th</sup> APSG meeting were discussed. Grant Geophysical offered to host the 9<sup>th</sup> meeting: Bish Karko to confirm. Consideration was given to holding the meeting during the week of the SEG (10<sup>th</sup> through 14<sup>th</sup> September) however a provisional date of Thursday 20<sup>th</sup> September was set

Mr. Jim Cain asked the meeting to recognize Mr. Tony Maultsby for hosting this meeting  
Mr. George Buhler asked the meeting to recognize Mr. Barry Barrs for his contributions as the  
APSG Chair

Mr. Barry Barrs asked the meeting to recognize Mr. Michael Barnes and Dr. Phil Summerfield for  
their contributions as APSG vice-chair and secretary.

The meeting was adjourned at 1613.