

"Fore-Sight"



"Fore-Sight" - Quarterly Newsletter of the Association of Surveyors of P.N.G.

Petroleum Seminar Suggests Vibrant Economic Situation to Remain

The PNG Chamber of Mining & Petroleum conducted a Oil & Gas Seminar on Thursday 1st December 2005 at the Hideaway Hotel in Port Moresby. In a busy day, many scheduled items were packed into the five seminar sessions



The Official Opening by Hon. Sir Moi Avei, MP, Minister for Petroleum and Energy was followed by the **Opening Session chaired by Mr. Gereia Aopi.** The first presentation *Department of Petroleum and Energy, Petroleum Division Update* was given by Mr. Rendle Rimua, Director of the Petroleum Division.

Session Two : Projects ... *Oil and Gas Project Updates - Kutubu, Gobe, Moran, and Hides Projects* presented by Oil Search Limited together with a 2nd presentation covering *Oilfield Developments - SEMananda and NW Moran.*

A short break for morning tea was taken before **Session 3 : Possible New Developments & Exploration Updates ...** Chaired by **Bernard Pawih** when three presentations were offered :- *Proposed Gas Commercialization - Hides Recycle, Methanol, CNG, Fertilizer, GTL* (by Oil Search Ltd); *Austral Pacific Exploration Update* (by Jenni Lean, Commercial Manager, Austral Pacific Energy (PNG) P/L); *Cheetah Oil & Gas Exploration Update* (by Jack Sari - General Manager Cheetah Oil & Gas Limited).

Lunch was taken between midday and 1:00 pm prior to the two afternoon sessions.

Four presentations were given during **Session 4 : Exploration Updates ...** Chaired by **Gary Moroney.** *Chinamapa Exploration Update* (Odd Larsen, Managing Director, Chinamapa Exploration P/L); *Niugini Energy Exploration Update* (Richard

Schroder, GM, Niugini Energy Limited); *InterOil Exploration Update* (InterOil Limited); and *Oil Search Exploration Update* (Oil Search Limited).

The final session was conducted following afternoon tea. **Session 5 : PNG Gas Project ...** Chaired by **Mr. Peter Botten.** A *Government Update* was given by Mr. Joe Gabut, Government Gas Project Coordinator followed by an *ExxonMobil Update* presentation by Gary Moroney, Managing Director of Esso Highlands Limited.

The **Closing Address** was given by **Mr. Bernard Pawih**, Acting Secretary, Dept. of Petroleum and Energy. Mr. Pawih summed up the current PNG oil and gas situation as a massive and ongoing potential.

The proceedings of the seminar have been supplied to all participants on CD-ROM. ASPNG Hon. Sec. / Treasurer Masang T. Bangindo has a copy of this CD and could provide information to interested 'surveying parties' on request.

As a sort of 'adjunct' to proceedings on the Petroleum Seminar, a *PNG Gas Project Reception* was held poolside at the Airways Hotel at 5:30pm on Friday 2nd December.

Footnote to the Above : The *Hides Gas Project* has the potential to produce high-grade diesel fuel without any sulphur content that may be given approval for use in certain turbine aircraft running PT6 engines. One further 'crack' down the line and it becomes Jet A1 aviation fuel. Food for thought !!!

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COMING EVENTS :

12 - 13 Jan : ESRI Users Conference - Asia Pacific, Hong Kong
apuc2006@esrichina-hk.com

30 Jan - 02 Feb : Map India 2006
info@mapindia.org

10 Feb : Hyperspectral Remote Sensing Workshop, Toowoomba
apana@usq.edu.au

9 - 12 Apr : Digital Earth Summit on Sustainability, Auckland
richard.simpson@intergraph.com

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Seasons Greetings
The ASPNG Council
wishes all members
and friends a Very
Merry Christmas and a
Prosperous New
Year in 2006
Please Drive Safely



Memorial Plaque Planned

Submitted by Masang T. Bangindo, Hon. Sec. / Treasurer - ASPNG

By way of a Report from Council, I submit the following correspondence from Bob Skitch, Vice President, Royal Australian Survey Corps Association (Queensland Branch).

The President,
Association of Surveyors PNG,
P.O. Box 1392, BOROKO. PNG.

Dear Sir,

I write to request your assistance in a small project I have in mind. It is to have placed in a suitable location a bronze plaque commemorating the service of the New Guinea Field Survey Section which served in Papua and New Guinea during World War Two.

The official history of the Royal Australian Survey Corps by Dr. Chris Coultard-Clark records that *"orders were given for the raising of a survey section as part of New Guinea Force ... This unit took shape during the first ten days of 1942. By the 11th it had a strength of three officers and twenty two other ranks, drawn partly from other units in the force such as the 49th Battalion intelligence section and partly from (local) employed by the local administration before the Army assumed control civilian enlistments including architects employed by the local administration before the Army assume control. The OC of the new survey unit was Lieutenant E.C. O'Reilly, a local government surveyor. Another of the officers was 35 year old Lieutenant N. Owers, better known by his nickname of 'Gerry'; he was a surveyor employed at Wau by New Guinea Goldfields who had been active in the local militia battalion, the New Guinea Volunteer Rifles"*.

The New Guinea Survey Section was soon after augmented by a section of the 3rd Field Survey Company in Australia. It was based initially at Murray Barracks but frequent Japanese bombing caused it to move to 'Fifteen Mile', north east of Port Moresby and then later to 'Seventeen Mile' in the 'shadow of Hombrom Bluff'. The section undertook surveys of both a topographical and engineering nature in and around Port Moresby and small elements were deployed to other sectors of the war zone as the months passed.

A task of significance was awarded to Lieutenant Owers, this being to identify a suitable gradient for a jeep track and the marking of it for construction engineers from Moresby as far as possible along the

Kokoda Track. The history records that *"initially Owers had no trouble finding a route to within a couple of miles of Uberi. By September a trafficable road to this point, duly named 'Owers Corner', had been completed and was in use. Beyond here, however, the task had become what a later writer described as 'one of surpassing difficulty'"*.

I have enclosed a photo copy of six pages of the Corps' history which gives more detail on the raising of the unit and its initial and subsequent work until its absorption into the 6th Aust Field Survey Company, which unit continued in support of military operations in New Guinea until the cessation of hostilities on the 15th August 1945.

However, the specific unit I believe should be commemorated is that which was initially raised from local volunteers within Papua New Guinea in March 1942, the members of which called their unit the New Guinea Field Survey Section, although subsequently officially re-designated the 8th Field Survey Section. Very few of those member survive today. Over the post war years they formed an association and distributed a newsletter that often contained reminiscences of some of its members, most notably the newsletter's editor, Mr. Brian Murray of Canberra. Mr. Murray is now in his late eighties and is not at all well.

You may well wonder what has motivated me to take this initiative. I was a member of the Royal Australian Survey Corps for twenty six years, from 1955 to 1981 during which time I saw service in Vietnam. As a young soldier in 1956/57 I was engaged on a mapping project in New Ireland which in pre-EDM days used the technique of 'Shore-ship' triangulation to establish map control around the coastline. I retired from the Corps at the rank of Lieutenant Colonel. I am a Licensed Surveyor, a Fellow of the Institution of Surveyors, Australia, and after my retirement from the Army worked for the Queensland Government until my final retirement in 1999.

The Australian Survey Corps (later 'Royal') was raised in 1915 and provided a mapping service in both peace and war until its disbandment in 1996, an act that is regretted by all its past members. During its eighty one years of service it carried out geodetic surveys and extensively mapped Australia and Papua New Guinea as well as

being engaged on mapping aid projects in Indonesia and the South West Pacific nations. Since 1946 the past members of the Corps and its various units over the years have maintained a number of ex-service associations which no broadly come under the umbrella on the 'Royal Australian Survey Corps Association'. It is under that banner that we march on Anzac Day, in Brisbane, carrying a World War Two vintage CTS theodolite in front of the banner. One of our objects is to leave lasting memorials of the Corps and its various units in appropriate locations. In this we have been assisted at times by the Institution of Surveyors, Australia, who of their own unveiled a dedicated a plaque in Darwin to the survey units that served there during World War Two.

The assistance I request is in :

1. Suggesting a suitable site for the placement of a memorial plaque - where it will be safe and seen by those who may have a professional interest, both surveying and military.
2. Advising the type of mount for the plaque - a stone or concrete plinth or something similar - a wall perhaps
3. Advising any costs that might be incurred. My Association would have the bronze plaque cast by a Brisbane foundry the specializes in bronze plaque production

The participation of the Association of Surveyors Papua New Guinea would be greatly appreciated, not only in the placement of the plaque but also in its dedication at a suitable ceremony.

RF (Bob) Skitch

Vice President

Royal Australian Survey Corps Association (Queensland Branch),

'Tanglin', 44 Beams Road, Boondall, Qld, Australia. 4034

The response from ASPNG included :-

"ASPNG will be delighted and more than happy to assist in providing details for the three (3) points raised in your letter of 20th October 2005 and also take part in commemorating this historic event. Please allow me to find the information you seek and will advise in my later correspondences to you."

I would like to take this opportunity to invite your Association to present a paper at our Annual Survey Congress to be held in Rabaul in July 2006. This will coincide with 40 years of Survey Congress for the association of Surveyors PNG. I will confirm the Congress theme with the congress dates and advise later".

Masang T. Bangindo, Hon. Sec/Treasurer.

Shuttle Radar Topography Mission (SRTM) Data Available for PNG

The Shuttle Radar Topography Mission (SRTM) is a joint project of NASA and the Department of Defence's National Imagery and Mapping Agency (NIMA).

Using Spaceborne Imaging Radar (SIR-C) and X-Band Synthetic Aperture Radar (X-SAR) hardware that flew twice on Space Shuttle Endeavour in 1994, SRTM collected data in a single shuttle flight in February 2000. The SIR-C/X-SAR is a multi-frequency, multipolarization imaging radar system complemented by additional C-Band and X-Band antennas located at the end of a 60 metre long mast, which deployed from the shuttle after reaching orbit. This configuration produced single-pass interferometry and SRTM acquired data with 225 kilometer swathes, imaging all of the Earth's land surface between 60 degrees north and 50 degrees south during the mission.

Processing of the data produced a world wide DEM in mid 2004 at a resolution of 30m over the US and 90m over the rest of the world. **The absolute horizontal and vertical accuracy achieved is 20 metres and 16 metres respectively.**

Enhancement of this data has been carried out to produce a SRTM2 dataset. Digital Terrain Elevation Data (DTED) is a uniform matrix of elevation values indexed to specific points on the ground. The horizontal datum is the World Geodetic System 1984 (WGS 84) and the vertical datum is mean sea level as determined by the WGS 84 Earth Gravitational Model (EGM 96) geoid.

The elevation data are with respect to the reflective surface, which may be vegetation, man-made features or bare earth. DTED Level 2 elevation values are spaced one arc second apart between 0 and 50 degrees latitude, and spaced one arc second apart in longitude and two arc seconds apart in longitude between 50 and 60 latitude.

SRTM DTED Level 1 values are derived from the SRTM DTED 2 values such that the DTED 1 values are identical to the DTED 2 values at coincident points. However, the SRTM DTED 1 values are spaced 3 arc seconds apart between 0 and 50 degrees latitude, and spaced 3 arc seconds apart in longitude and 6 arc seconds apart in longitude between 50 and 60 latitude.

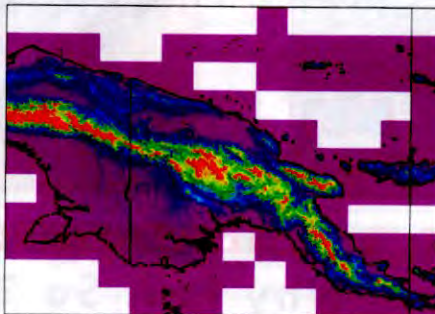
Part of the quality assurance checks include a number of finishing steps. Spikes and

wells in the data are detected and voided out if they exceed 100m compared to surrounding elevations. Small voids (16 contiguous posts or less) are filled by interpolation of surrounding elevations. Large voids are left in the data.

Water bodies are depicted in the SRTM DTED. The ocean elevation is set to 0 metres. Lakes of 600m or more in length are flattened and set to a constant height. Rivers that exceed 183 metres in width are delineated and monotonically stepped down in height. Islands are depicted if they have a major axis exceeding 300m or relief greater than 15m. The data are processed in one degree by one degree "cells". The edges of each cell are matched with the edges of the adjacent cells to assure continuity.

In addition to voids due to shadows and layover and poor reflective properties of the Earth's surface, there are additional floating islands of data, unregistered vertically, due to phase warping errors. On the whole, the SRTM DTED absolute height accuracy is significantly better than the 16m (90% confidence) specification for the mission.

SRTM DTM data covering PNG is available for UTM Zones 54, 55 and 56.



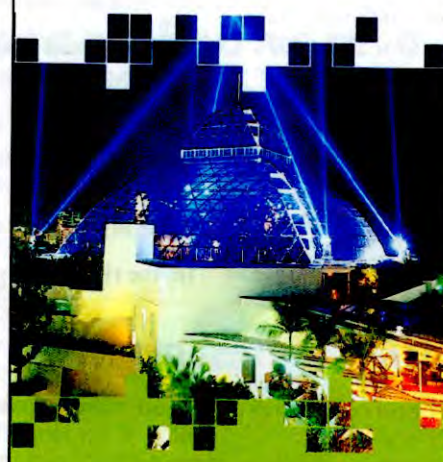
The available data formats are .BIL (ERmapper) or ASCII.

Trials with the data using ERmapper 6.4 readily generate 10m formlines that can be exported in .dxf or .shp format for use in CAD or GIS applications (including Map-Info). Comparison of 40m formlines generated from the SRTM data and those (40m) available on the 1:100,000 topomaps show only a general resemblance. Spot checks indicate the SRTM 'contours' appear to be about 60 to 80 metres below those shown on the 100 thou map sheets. A lot of editing is also indicated to remove "clutter".

GEO-GRAPHICS Limited is continuing product development tests.

Combined 5th Trans Tasman Survey Congress

**Combined
5th Trans Tasman Survey Conference
2nd Queensland Spatial Industry
Conference 2006**



Land and Sea Spatially Connected - In a Tropical Hub

20 - 23 September 2006
Cairns Convention Centre
Queensland, Australia

**First Announcement
Call for Abstracts**



www.icms.com.au/cairnsspatial2006



SURVEYOR'S CPD QUIZ

When a plane table is set up over a station and the line of sight of the alidade is to be directed to another point, the most important requirement is that :-

- The drawing board must be exactly horizontal
- The working edge of the blade of the alidade must pass through the plotted position of the plane-table station
- A plumb bob must be held at the point to which the sight is taken
- The plotted position of the plane-table station on the map must be exactly over the station on the ground

Answer "D" was the correct response to the last question.

"Fore-Sight",
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Members & Other News ...

Surveyor Bill McKibben keeps in touch on a regular basis. He's currently based in Bialla doing a stint of surveying for Hargy Oil Palms who have recently invested in hi-resolution satellite imagery over their estate areas. Being a good CPD man, Bill has acquired *ERmapper* and is carrying out interpretative R&D on the imagery. It will be interesting to see what he comes up with in due course. Bill's also concerned that he may not be financial - says he hasn't seen an invoice from **ASPNG** in a few years. He'd like a copy of the latest Scale of Fees - wouldn't we all (?). He also enjoys *Fore-Sight* (if and when it arrives).

Interesting to note the proposed **Memorial Plaque** commemorating the efforts of the **WW2 New Guinea Field Survey Section**. Owers Corner (crashed a rally car there once) is getting a bit congested these days with a number of memorials already established. **Perhaps one of our ASPNG members** can suggest a suitable location for the proposed plaque. I'm not too sure about the colourful wall around Murray Barracks - but there is a nice new memorial site (secure and well maintained) along the Koki - Ela Beach divided road.

The **Institute of Mapping and Spatial Science PNG** was to have held their Inaugural Cartographic Conference in Port Moresby last year, then this year well maybe next year. At least they're giving it a go !!

Rumours, rumours, rumours ... we're led to believe the **ASPNG Council** will have an **Association web-site** ready for launch in conjunction with the **(40th) 2006 Survey Congress in Rabaul**. Construction of the web-site was commenced by **surveyor Dickson Taunagita** in 2002, and was recently continued and upgraded by **surveyor Mary Pati (Iataut)**. We eagerly await the web-site's introduction.

Do the right thing - buy a copy of 'MastaMak' and give it to a friend this Xmas.

"Light Refreshments ..."

"Feeling Confused? Too many directions?" ...



'...then why not get straight to the point !!'



Editorial Comment : "Why Is It So ??? ..."

The expression "*Why Is It So ???*" was made famous by Professor Julius Sumner Miller, a not so eccentric scientist and very entertaining TV personality of some years past. His question was always conveyed to viewers before or after some experiment or other, encouraging people to think about what they had seen - to reason indeed, "*Why Is It So ???*".

Recently I've had cause to ask the question "*Why Is It So ???*". Is there an **ASPNG** member out there who can help with my dilemma? You see, it's about getting believable results (in a reasonable time-frame) when surveying with GPS.

It's not the position that's the problem - it's the heights. Raw heights collected by the GPS are 'ellipsoid' - ie about 80 metres above the Earth's surface. The choice here is to subtract the geoid separation value or to carry out differential correction using RL of the base station survey mark. It's not so bad if the RL is known, but the situation changes when you are establishing a new base station con-

trol point. When needing a rapid response in a field situation - it's damn annoying to have to wait two weeks to get an answer because we have to refer to an external source. And then we often have conflicting information that delays a result even longer.

Why is it that Unitech and the NMB have two different means in determining a solution - and often the solutions disagree (?). Why is it that private practitioners are not permitted the means to determine their own solutions (?). Is it some sort of proprietary secret about the software and the source of the geoidal models used in determining a solution (?). I've asked all the questions, but don't ever seem to get some sort of reasonably sensible response. Surely, if the yanks removed selective availability and permitted commercial (and accurate) surveying by GPS, then the geoidal models and associated processing software for resolving elevation differences should be in the public domain.

I'd like to hear what others have to say about this situation. - Ed.