

Pacific Island GIS&RS User Conference 2014

Conference Summary

The Pacific Islands GIS&RS User Conference was held from 25th to 27th November under the theme “Empowering Pacific Communities through Improved Geospatial Data” in the facilities of the Japan Pacific ICT Centre at USP. The GIS conference 2014 received a good response from GIS&RS software vendors, users from agencies, organisations and government ministries within Fiji, the pacific region and the international arena. A total of 57 organisations, 11 vendors and 22 countries were represented at the three days long conference. More than 300 people participated and in average there were 115 in every of the 16 sessions even partly held in parallel.



Participants after the first coffee break in front of the Japan Pacific ICT Centre, in the middle of the front line Permanent Secretary Lands & Mineral Resources Fiji Tevita Boseiwaqa, Director SPC-SOPAC Prof. Dr. Mike Petterson and Dr. Dilawar Grewal, Vice President Administration USP

On 24th and 28th the Geospatial Specialists and Surveyors from the Pacific Island Countries met and formed – so far interim - Pacific Geospatial and Surveying Council. This group had an impact to the conference especially during the discussion session talking about Pacific projections. It is planned to have this back to back conference again in 2015. On 24th of November also the ESRI user conference was held as back to back function.

From **Fiji** following **Government agencies** were present: Ministry of Lands, Ministry of Fisheries and

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Forestry, Navy, Army, Police, Bureau of Statistics, Town and Country Planning, Nasiniu Town Council, Nausori Town Council. Following half state bodies of Fiji attended the conference: Itaukei Land Trust Board, Housing Authority, Sugar Tribunal Industry, National Trust, Water Authority (WAF), Electricity Authority (FEA), FIG Commission, Fiji Pine Limited, Bio-Security Authority and Fiji National University. Following Government agencies came from other Pacific island Countries: **Solomon Islands:** (i) Maritime Safety Administration, (ii) Ministry of Lands, Housing & Surveying, (iii) Solomon Islands Electricity Authority (SIEA), (iv) Solomon Islands water Authority; **Tonga:** (i) Ministry of Lands & Natural Resources, (ii) Ministry of Agriculture, (iii) Forestry Division, (iv) Communication and Infrastructure and (v) Tonga Power Ltd; **Marshall Islands:** (i) Environment Protection Agencies and (ii) the Marine Resource Authority; **Papua New Guinea:** Mineral Resources Authority; **Tuvalu:** Department Lands and Survey; **Vanuatu:** Department of Lands; **Palau:** Ministry of Lands; **Cook Islands:** Ministry of Agriculture; **Kiribati:** Ministry of Agriculture; **Niue:** Division of Land Survey Management. **Federated States Of Micronesia:** (i) Island Research and Education Initiative, (ii) Ports Authority Phonpei; **Samoa:** Electricity Authority

Following **international organisation** participated: IUCN, WHO-UN, FAO, Wild Life Conservation, GIZ, MWH Global, Geo-Science Australia, SIBA, and Hawaii Pacific University. **Regional organisations** participated in the conference were: The University of the South Pacific, SPC and SPREP. Following **private companies** visited the conference: Eagle Technology Group Ltd, GeoSystems NZ Ltd, Hexagon Geospatial, DigitalGlobe, Airbus Defense & Space, Bluecham SAS, Lion One Ltd, CheSpatial, HERE Maps, GRID-Adrenal.

The **presentations** covered a wide range of GIS, GPS & RS topics. This included GIS software, new sensors like WV-3 and ALOS 2&3, GPS applications, GIS Web platforms, field survey, utilities, new land cover and forestry mapping approaches, 3D mapping, surface models, disaster applications, UAV applications. A total of 74 presentations of 4 presentations identified commercial GIS soft wares like ESRI, Hexagon, Trimble etc and its mapping applications. 3 presentations covered the latest GPS models, new features and it's accuracy level. 8 presentations concentrated on new sensors, image data availability and new methods for example crowd sourcing. 5

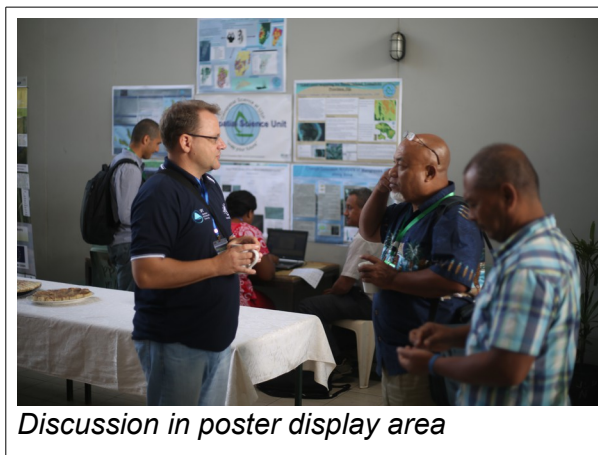
presentations focused on UAV/UAS technology, high resolution beach terrain mapping and UAV assistance to disaster assessment response. 2 presentations touched on pacific frames or projections. 3 presentations centered on Utilities. 4 presentations focused on land cover mapping 8 presentations focused on Open Source GIS highlighting Geo-node solutions, Web portals, Open access and projects that are positively using Open source GIS. 7 presentations elaborated on remote sensing topics covering forest stratification using VHR images, assessment of forest carbon stock and change



*Presenting in main room of the USP facility
Japan Pacific ICT Centre*

detection, 5 presentations on 3D models, data available with vendors and communicating through 3D GIS. 11 presentations focused on ocean boundaries project, mapping tools for marine planning, inundation risk assessments, surveys, and recent developments. 3 presentations shared on GIS Education, professional certification with SSSI and a new initiative of USP provide a Bachelor of Geo Spatial Science at USP.

The **Japan Pacific ICT Centre** provided a very nice environment for the conference and will be available 2015 again as contribution of USP. On day 2 of the conference parallel sessions were running, which the first time on the user conference and participants had to select topics to attend. Two rooms were used, the main auditorium and a conference room beside the main auditorium. Although this created movement within the sessions, a positive attendance was registered for both locations. It depends on the donors, who insisted to shorten the conference from four to three days, if this concept will be used again in 2015.



The **Poster Display** was concentrated outside the main presentation room and provided sufficient space for companies to display products and information material.

The **Discussion Sessions** was well attended. The discussion session at the conference provide input to method developments at SPC and USP and is therefore an essential part of the event. The sessions focused on 4 topics:

The discussion session **“Pacific Projections”** led by Matt Amos, Land Information and supported by John Dawson, Geoscience Australia and Malcolm Archbold, Beca Ltd. Many Pacific island countries work in local projections that are non in terms of the WGS84 geocentric datum. Issues arise when spatial information is required for international activities such as flight and shipping vessel security. The participants agreed that it would be very helpful for all countries to move to a modern centric datum and map projection. However, projection specialists clarified that WGS84 is a moving datum as the reference points are moving with the shift of the continental drift. This results that at survey scale (centimetre accuracy) a point has not the same absolute position over time. The should be (i) a move from the current historic datums and map projections to a Pacific datum which will be renewed in time intervals and which provides the link to WGS84. There should be also (ii) a central website (SPC) where for all utilised software products the customised projection file is available for download for Pacific datums and projections. There is an opportunity for the newly formed Pacific Geospatial and Surveying Council to assist.

The discussion session **“Image Pre-Processing”** was guided by Litia Gaunavou, SPC-SOPAC. Image pre-processing covers (i) image stitching, (ii) haze removal, (iii) atmospheric correction and (iv) ortho-correction. Image data such as WorldView-3 take over part of these steps with the in-built

functions and the question is if there is still a need for image pre-processing at SPC-SOPAC as main image distributor for the Pacific? This task is covered by a full position under core funding. There was a clear answer during the discussion from DigitalGlobe that they need the local input as digital terrain models, image reference points, etc. are not available at the company for the scale required. An example was provided where a geo-referenced data set of WorldView-2 image data had an 80 metre shift in mountainous area, which will be further investigated.

The discussion session “**Open Source Software**” was guided by Sachindra Singh, SPC-SOPAC. Regarding open source software application change is visible, the large number of geospatial web portals and decision support systems presented at the conference demonstrated the wide uptake of open source software for data dissemination within agencies and countries in the Pacific. Concerns were raised in regards to lack of technical capacity and skill-sets in the Pacific to maintain and implement open source GIS projects, however, the upcoming degree in GIS, which is largely based around open source GIS tools, is thought to address this shortcoming. Sub-par functionality and user-friendliness of open source desktop GIS clients, as compared to proprietary alternatives remains an issue.

The discussion session “**Vegetation Stratification and Mapping**” was guided by Vilisi Tokalauvere, SPC-SOPAC. There is a need of stratification of Pacific forest cover including mangroves. Apparently already the WorldView-2 data quality is not fully utilised for further vegetation stratification. USP and SPC-SOPAC have limited capacity to investigate in new data and methods. Most investigations and developments were made during the last years by students from Netherlands and Germany, who are sent with clear concept, sometimes own data and equipped with funding. Ways were discussed to increase the investigations carried out by Pacific islanders which resulted in free WorldView-3 image data from DigitalGlobe and even closer cooperation between USP and SOPAC to jointly investigate in the new data quality. Also JAXA will provide free DTM data from Suva area for accuracy and utilisation analysis. DigitalGlobe made the important statement that local data analysis is essential for the data provider.

There were several **social functions** which provided a platform for networking. There are not many occasions where Pacific island GIS&RS user can meet. The Pacific is a huge region and travel is extremely expensive. Therefore the conference pays special attention to have every evening a social function providing the atmosphere for get to know each other and discuss common problems and assistance or solutions. The **conference opening cocktail** at the end of the first



Yaqona evening



Peter Kinne (DigitalGlobe) addressing the participants during the opening cocktail

day was hosted by DigitalGlobe and was very well attended. Most participants hand their drink outside in the last sun rays of the day.

On the second day traditional **yaqona** was served at then USP bure, an experience for outsiders not familiar with the Pacific.

The **good bye cocktail** was also used (i) to present awards to four special Pacific GIS and RS applications and to (ii) celebrate 15 years of the Pacific islands GIS&RS User Conference. The awards were handed out by Kellee Ireland, the General Manager of the Spatial Industries Business Association (SIBA) which first time came to the conference but promised to come again next year.

The Pacific Islands GIS&RS User Conference is still an

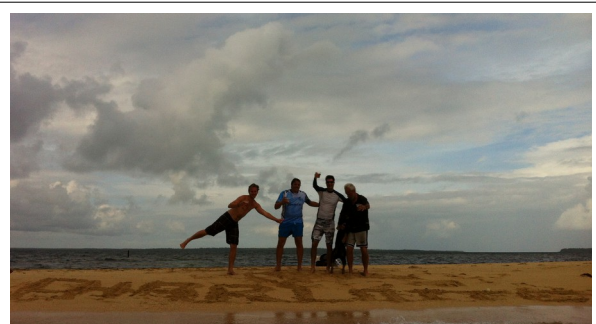


The Ambassador of Marshall Islands receiving the special SIBA awards from Kellee Ireland in behalf of his country



Wolf Forstreuter from the conference committee blows off the candles of the conference birthday cake

independent body, not owned by SPC, USP or any other regional organisation. Since 15 years donors provided sufficient funding to run the conference under the conference committee as the largest Pacific GIS and RS conference where mainly Pacific Island Countries participating and presenting. This was celebrated with a birthday cake and the song “Happy Birthday dear Conference” where everybody participated.



The last ones before departing back to Suva

The last social function was the picnic at the sandbank in the Suva reef. Two boats transported drinks, BBQ and participants to the sandbank located in the middle of the Suva reef on the east side of the Suva peninsula. This year the picnic was mainly attended by the participants coming from overseas. People forget that the sandbank is located in a reef and it is an unique experience having a drink surrounded by “open” sea under clear sky while it was raining in Suva.

The Pacific Islands GIS&RS User Conference resulted in several positive **Outputs** within the one week of conference and back to back workshops and meetings:

(A) After last year's conference with low attendance due to wrong location and advertising this year's conference had more participants than other conferences before and through this it sets a signal that this kind of conference is needed for the region and financial support for next year's conference is promising.

(B) There was always a close cooperation between SPC and the GIS section of USP. Now after USP had provided the excellent conference facilities and witnessed the positive reflection of the conference participants there will be a memorandum of understanding between the general management of USP. In addition, there will be a cooperation in data management between SPC and USP allowing SPC to utilise the data backup facilities.

(C) The Cooperative Research Centre for Spatial Information (CRCSI) supported the conference with substantial funds and it is most likely that there will be a written agreement of further support.

(D) There will be further support from Cooperation with Spatial Industries Business Association (SIBA). The awards handed out were received very positively.

(E) The Pacific Geospatial and Surveying Council is not formally established yet, but this is a question of time. There is already a statement that they will meet next year back to back with the conference which will guarantee additional input in the field of survey and geodesy.

(F) Small meeting during and after the conference resulted in several requests for SPC assistance to set up GIS units or to enhance existing units.

(G) A spatial data infrastructure meeting on Friday after the conference was held, which provided essential advice for Pacific islands in data handling.

(H) New methods of image analysis were demonstrated during the conference and Pacific Islands Countries are informed and will be informed further through the conference website and other network vehicles.

(I) Pacific islands GIS and RS users were informed of new type of data such as additional bands of satellite WorldView-3, very high resolution DTM of Airbus Defence and Spatial, high resolution DTM of ALOS satellite of JAXA, new data generation of enhanced UAV and analysis software.

(J) The countries were informed about new software updates from ESRI, Hexagon, Trimble and open source solutions.

(K) The discussion session documented common problems and advised on solutions.

(L) A new approach was tested that Pacific islanders with long time GIS&RS experience lead the technical sessions. This was received positively and the conference will extend on this.

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The output of the 3rd SDI Meeting between SPC, SPREP, GeoScience Australia, CSIRO, UNEP.GRID Arendal and IUCN Fiji were as follows:

1. Defining a standard deployment of Geonode SDI, particularly server resources, configuration, virtual environments and other options.
2. Defining and publishing a standardised structure for the data within the Pacific countries.
3. Commence drafting of a general standard and MOU that can be endorsed and signed by all the relevant CROP agencies. This will reduce overheads and the complexity of maintenance.
4. Discussion of coordination within in-country SDI deployments – identifying configuration standards and maintenance tasks
5. Discussion in regards to synchronisation of data sets between agency and country SDI implementations– using GeoGit and manual transfer of virtual machine images.

Donors & Financial Break Down

The conference is running since 15 years and was always fully financed by several donors who all contribute with little demand of visibility. The conference banner, the agenda handed out, the website and the opening speeches name and show the donors, however, this is still on a very basic level. The conference is still a Pacific Islands conference which apparently makes the event attractive for companies and Pacific islands GIS officers. The table below lists all donors and funds received up to 19th January 2015.

Revenue			FJD
		ex. rate	received
Surplus from 2013			273.30
CRCSI	USD 2500	0.5397	4,632.20
CosPac Project	FJD 4400		4,400.00
ESRI/Eagle Technology	FJD 2000		2,000.00
Intergraph (HEXAGON)	FJD 2000		2,000.00
Digital Globe	USD 1000	0.5397	1,900.00
CSIRO - Govt of Australia	AUD 1000	0.5958	1,678.42
Trimble	AUD 1000	0.5958	1,678.42
Government of Fiji's Ministry of Lands & Mineral Resources	FJD 1000		1,000.00
PICISOC	FJD 1000		1,000.00
BSRP Project - EDF 10	FJD 1000		1,000.00
TOTAL			21,562.34

Table 1: Funds received status 19.01.15. This table does not reflect that USP provided the venue facilities for free and that SPC-SOPAC contributed in form of working hours.

There might be additional funds arriving from the University of Sydney.

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Expenses		FJD
(A) Venue (MSP- Lecture Theatre)- Thursday afternoon		520.00
Chairs & Tables (Exhibition) for 3 days		270.00
Refreshments day 1 (\$22*200 people)	4,400.00	
Refreshments day 2 (\$22*100 people)	2,200.00	
Refreshments day 3 (\$22*100 people)	2,200.00	
		8,800.00
(B) Social Events		
(1) Opening drinks	1,155.60	
Venue (USP Staff Club)	220.00	
Finger foods	500.00	
Additional drinks on the night (soft drinks, water, additional beers)	384.00	
(2) Grog (Bure -500 + expenses -300)	800.00	
(3) Closing drinks	1,680.00	
(3) Closing cocktail finger foods	500.00	
(4) Sandbank picnic	800.00	
		6,039.60
(C) Operational Costs		
Banner	500.00	
contingency (stationary, salusalus (garlands), etc.)	500.00	
		1,000.00
TOTAL EXPENSES		16,629.60

Table 2: Expenses up to 19th January. The exact figures e.g. sandbank picnic (758.99 instead of 800) or contingency have to be calculated from the provided receipts. They will not change this overview in general.

This year the conference seems to have about FJD 5,000 left in the bank which will contribute the Pacific Islands GIS&RS User Conference 2015.

This is version 3 of the conference summary, which might be updated if additional information arrives when the Pacific Christmas break is really over. For detailed information about the presentations please visit the conference website: <http://picgisrs.appspot.com/>