



## PACIFIC SCIENCE TECHNOLOGY AND RESOURCES NETWORK (STAR)

# STAR Steering Committee Annual Report 2018

August 2018

### CONTENTS

1	Foreword by the Chair of STAR.....	2
2	Introduction .....	2
3	Activities and Services in the Reporting Period .....	4
4	Financial Report .....	11
5	Acknowledgement of Donors and Supporters.....	12
6	Forward Thinking .....	12
	Annex 1 – List of STAR 2018 Participants & Steering Committee Members .....	14
	Annex 2 – Minutes of the 3 <sup>rd</sup> Annual General Meeting .....	20
	Annex 3 – Complete Lists of Abstracts; and Posters on Display .....	25
	Annex 4 – Final Programme of Presentations .....	32
	Annex 5 – Acronyms used in this Report.....	35

Prepared by Lala Bukarau

August 2018



## 1 – FOREWORD BY THE CHAIR OF STAR

I welcome the presence of the Honorable Minister for Industry, Trade, Tourism, Lands and Mineral Resources, Mr Faiyaz Siddiq Koya, to open the STAR 2018 conference. The Honorable Minister Koya holds one of the biggest portfolios in the Fiji Government with a ministerial staff in excess of 500 and a budget in excess of F\$100 million.

I'd like to acknowledge the kind support of the Geoscience, Energy and Maritime Division (GEM) of the Pacific Community; Australian Volcanological Investigations; the Pacific GIS and Remote Sensing Council; the Circum-Pacific Council (CPC); Korean Institute of Ocean Science and Technology (KIOST); Standard Concrete Industries Limited and the STAR Steering Committee; without whose generous support this STAR Conference would not have been possible. Your support, generosity and efforts towards reinvigoration and independence are vital for the STAR group; and critical for the continuation of the Network and its intended work.

The STAR 2018 is our first meeting as a truly independent STAR Network having taken that road with major financial support from the Ministry of Lands and Mineral Resources and taking the lead in organising the meeting, as well as chairing Steering Committee meetings in association with GEM. The Pacific Community (SPC) is acknowledged for their assistance with moving the STAR funds and documents. Also I acknowledge the GEM staff who stayed with the STAR Steering Committee even though STAR has weaned itself from the regional organisation.

I urge the co-conveners of the GeoResources and the Geothermal working groups to re-convene and retain the interest in their working groups because they remain high potential areas in the Pacific.

The way forward will be the STAR refining itself after the rebirth into the independent entity that it is now in 2018; and so the Steering Committee's work is clearly cut out from the feedback of members on ways of improving and promoting STAR's work.

I thank all the participants from abroad and local attending the STAR 2018 conference; and particularly those of you who have attended STAR sessions for a long time. We all deserve a big round of applause for the success of the conference.

*Malakai Finau*

*CHAIR OF STAR*

*Permanent Secretary, Fiji Ministry of Lands and Mineral Resources*

*July 2018*

## 2 – INTRODUCTION

This Annual Report is covering the activities of the STAR 2018 Steering Committee in organising the STAR 2018 Conference and in continuing to advance the agenda for a sustainable STAR.

The Fiji Government, through the Permanent Secretary of the Lands and Mineral Resources, Mr Malakai Finau, continued in the role of Chair of STAR; working with the



Pacific Community through its Geoscience, Energy and Maritime Division (GEM)<sup>1</sup> on the task of exploring the different options for taking the Science, Technology and Resources Network of the Pacific (STAR) into a more independent model, that would enable the STAR conference to become a self-funded and a more regular event. The Circum-Pacific Council (CPC, formerly Circum-Pacific Council for Energy and Minerals) that is a partner with the STAR to explore options and models of sustainability continued in an advisory role.

The STAR Steering Committee is shepherding the STAR annual conference into a space where it can be the major forum to where many Pacific island technical officers and professionals in the enlarged spaces of the geosciences can gather, exchange and share ideas, techniques in their vast areas of work. We know of no Pacific island nation that has a national science council; and by default this role falls to the Pacific Community (SPC); which given its huge portfolio of programmes and projects; and style of annual reporting on work in Pacific island nations to a council of government officials that are not end users of the technical information – much excellent information is not getting to those that will use it. The STAR conference is an avenue for information exchange and is well positioned to be a vehicle or catalyst for the creation of new projects and new programmes which can then be moved to organisations like the SPC for implementation.

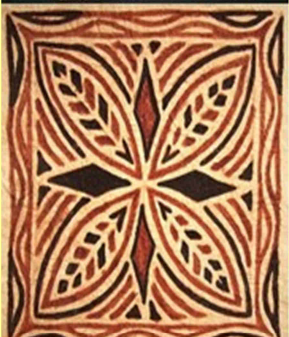
It is the view of the core members of the STAR Network that it needs a regular (in this case, annual) gathering for continual networking, collaboration and keeping up with the latest developments; in a region still sorely lacking the technical know how to manage georesources and geohazards and the outside interests in these; within the geotechnically diverse landscapes of volcanic and atoll islands along with its associated coastal and deep-sea oceanic spaces.

Aside from Papua New Guinea, and the strongly French supported Vanuatu, most Pacific island nations need collaboration with each other and with those who have vested interest in the Pacific to address development issues of Pacific island nations that is of benefit to all; and the STAR Conference can be an avenue of collaboration, exchange and evaluation of research and other types of interest in the georesources of the Pacific region.

In his opening address of the STAR 2018 Conference, the Honourable Minister of Industry, Trade, Tourism, Lands and Mineral Resources, Mr Faiyaz Siddiq Koya, stated the Fiji Government’s recognition of “the importance and impacts of such conferences as the STAR ... [as] these forums play a vital role in mapping out local and regional adaptation programmes ... against the unforgiving effects of climate change.” Mr Koya is Minister in charge of the Lands and Mineral Resources departments, which are in the forefront of



<sup>1</sup> What was known as the Geoscience Division (GSD) was renamed in 2017 the Geoscience, Energy and Maritime Division (GEM)



establishing the STAR Network as an independent entity. In 2018, the Ministry hosted the recently concluded STAR 2018 Conference as the first conference in the history of STAR as an independent STAR Network.

The Director of the Geoscience, Energy and Maritime Division of the Pacific Community, Dr Andrew Jones, also featured during the opening session and in remarks that encapsulates a major reason for reviving the STAR forum he said, “When I was writing this speech I was reminded of the philosophical question ‘*If a tree falls in a forest, and no one is around to hear it, does it make a sound?*’ Well if scientists were to answer this question rather than philosophers they would tell us that it doesn’t matter whether or not someone is there, energy released through the falling tree will create vibrations in the air, in the same way my voice is now. It’s predictable. But the reason the saying came to mind, is because in my mind if we use science to understand the earth, but no one is benefiting, is there any point doing it in the first place. And that’s why doing science wasn’t enough for me. That’s why I work in applied science. That’s why I work in science for development. We need people to use science to make better decisions; to improve lives and livelihoods.”

The STAR Network is positioning itself to contribute to getting the right science into the right hands of end users who reside in the Pacific who will use it to the benefit of all the peoples of the Pacific.

### **3 – ACTIVITIES AND SERVICES IN THE 2018 REPORTING PERIOD**

The Chair of STAR was assisted in his convening of the STAR 2018 Conference by a Steering Committee, consisting primarily of the staff of the Lands and Mineral Resources section of the Ministry of Industry, Trade, Tourism, Lands and Mineral Resources; and staff from the GEM Division of SPC, assisted by advisors from the CPC and members of the STAR network. The work of convening a STAR conference is a task that is over and above the very busy day jobs of the Steering Committee members:

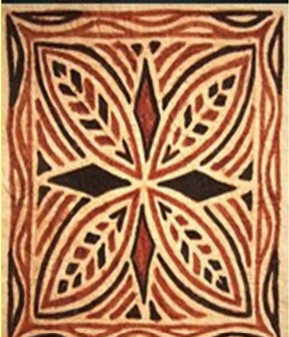
#### ***STAR 2018 Steering Committee Members***

Chair – Malakai Finau, Permanent Secretary of Lands and Mineral Resources

Committee Members – Raijeli Taga (Lands Department), Apete Soro (MRD), Andrew Jones (GEM), Robert Smith (GEM), Litia Waradi (GEM), Akuila Tawake (GEM), Russell Howorth (Matadrevula Advisory Services), Wolf Forstreuter (GEM), Paul Taylor (AVI) and Sereima Koli (MRD)

Co-opted into the STAR 2018 Organising Committee were Agnes Peter-Hansen (MRD), Temalesi Raqitawa (MRD), Rigieta Ravuiwasa (MRD), Litia Takalaiyale (MRD), Lala Bukarau (Consultant) plus select staff from the Lands and Mineral Resources departments of the Ministry.

Contact email addresses of the STAR 2018 STAR Steering and Organising Committee members can be found in Annex 1.



### 3.1 – 2018 Committee Meetings

Arrangements for the STAR 2018 conference began in earnest in the latter part of the first quarter of 2018, after the independent bank account for the STAR Steering Committee was opened and the STAR funds transferred to it from the SPC. The First Circular and Call for Papers for the STAR 2018 was circulated in January 2018. The Second Circular giving more details on the programme and the conference Field Trip was circulated in April 2018.

In the intervening period between the STAR 2017 and STAR 2018 conferences the Steering Committee held 5 coordination meetings; with most business conducted via email. The committee meetings and exchanges of late 2017 and early 2018 dealt primarily with organising the necessary papers and appointing a group of STAR Trustees to operate a STAR independent bank account. The efforts of Robert Smith and Mrs Litia Waradi of GEM are to be commended as critical to the timely and successful conclusion of the STAR Steering Committee’s pursuit of the independent bank account. Mrs Waradi is also an appointee of the Judiciary arm of the Fiji Government as Justice of the Peace and Commissioner for Oaths; and holding these offices became invaluable for completing the paperwork to the satisfaction of the authorities and the local bank where the STAR bank account was eventually opened in February 2018.

Hence, the STAR 2018 Conference, which is the 35<sup>th</sup> meeting of the Network, is the first meeting ever to be convened by a truly independent STAR Network.

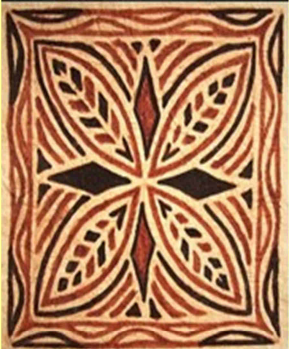
Committee member Paul Taylor, formerly of the SPC, returned to Australia late in 2017 but continued to avail himself to the task of being point man for the Steering Committee processing the public releases of the STAR 2018 conference circulars and performing the initial collation of the STAR abstracts as the first point of contact for potential participants.

Itinerant Committee member Lala Bukarau was engaged by the STAR Steering Committee as Consultant at the end of May 2018 and attended a couple of meetings with the STAR Chair and the Steering Committee at the latter part of June 2018 to take over the tasks handed over by Paul Taylor, as he had given his apologies that he could not attend the STAR 2018.

### 3.2 – STAR 2018 Conference and Field Trip

The STAR 2018 was held over four days from 10<sup>th</sup> to 13<sup>th</sup> July 2018; with three days of presentations at the Holiday Inn hotel in Suva and a half-day field trip around the Suva Peninsula. The optimal conference size appears to be a three-day presentation programme (40-50 oral presentation papers) with one day for field trip.

The STAR 2018 overall theme was “Geoscience Development in the Pacific Islands.” Papers were presented that addressed: minerals and mining, geological mapping, remote sensing applications, environmental and groundwater monitoring, oceanic island volcanism, land use and regional risk assessment techniques and much more.



Fifty-six (56) abstracts were submitted for the programme, of which 46 were orally presented and 5 were poster papers; the rest were withdrawn or the presenter did not show up. See Annex 3 for the final list of abstracts and poster papers; plus other promotional posters that were on display during the STAR 2018 conference.

The STAR 2018 post-conference Abstract Volume is available on the STAR website for download. A disc of all the presentations made at the conference can be ordered from the STAR Steering Committee, see Annex 1.

The half-day Field Trip was conducted on Friday, 13<sup>th</sup> July, looking at the tertiary sedimentary deposits that constitute Suva Peninsula. Road cuts and quarry excavations have exposed bedding contacts and structure that reveal information essential for consideration of geohazards to Suva's infrastructure development. The field trip visited a number of active quarry sites being excavated or processing hard and soft fill; and a location with good potential for a hardrock quarry which is in an area zoned for agricultural leases was also visited. Only 20 places were allowed for the field trip.

The Fiji Mineral Resources Department provided the transport, escort and safety gear for the field trip participants. Robert Smith (of GEM-SPC) provided the geological narrative which was



drawn heavily from another STAR field trip around the Suva Peninsula organised by the Mineral Resources Department with geological narrative provided by the late Peter Rodda in 1993. Copies of the Conference Field Trip Notes were produced by the Mineral Resources Department team. The e-copy can be downloaded from the STAR website.

The initial compilation of the book of Abstracts was carried out by Paul Taylor of AVI and completed by Lala Bukarau (Consultant to the STAR Steering Committee). The post-conference final version of the Abstracts booklet is also available for download from the STAR website.

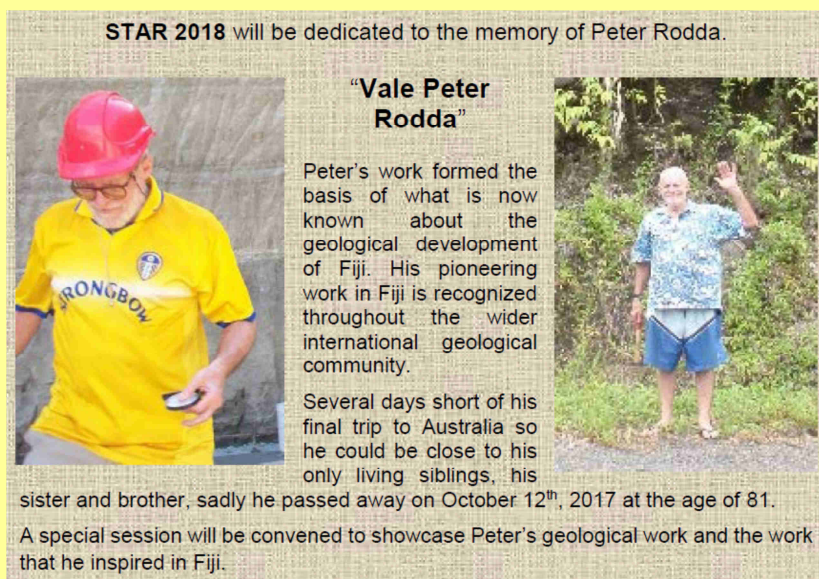
The programme of presentations for the first three days of the conference was prepared by Ms Bukarau with invaluable assistance from Wolf Forstreuter of GEM-SPC – this also involved the daily tracking of the changes to the programme as the event progressed. The production of copies was by the Mineral Resources Department team at the conference site. The final programme is attached as Annex 4.

Rapporting duties to capture a good account of the event to compile this document were also shouldered by Ms Lala Bukarau and she was assisted in this aspect by GEM's Atishma Lal.

### **Special Session on the "Life and Times of Peter Rodda – His Contributions to the Geology of Fiji"**

The excerpt shown below from the STAR 2018 Second Circular announced the special session that was convened on Day 2 of the STAR 2018 Conference. The main event was a

pictorial presentation with narration by Robert Smith; and the Mineral Resources Department mounted a display that showed the several volumes of the Bibliography of Fiji Geology, Peter's meticulously researched 'hobby' that he mostly worked on when he went to Australia for his holidays; and even if he



**STAR 2018** will be dedicated to the memory of Peter Rodda.

**"Vale Peter Rodda"**

Peter's work formed the basis of what is now known about the geological development of Fiji. His pioneering work in Fiji is recognized throughout the wider international geological community.

Several days short of his final trip to Australia so he could be close to his only living siblings, his sister and brother, sadly he passed away on October 12<sup>th</sup>, 2017 at the age of 81.

A special session will be convened to showcase Peter's geological work and the work that he inspired in Fiji.

was in another country, Peter would make the time to visit libraries and research his favourite topic – The Geology of Fiji. His field notebooks; his published work, geological hammer, coffee cup and other tools of his trade that was also his leisure and his art, were also on display.

The pictures told the story better than a thousand words – the rough conditions which the field officers had to endure in those early days of the sixties when they were out doing mapping in some really tough terrain where scrub had to be cleared to make some seriously make-shift camps, with near-zero communication. It was also a passing parade of interesting local characters like Aminio Qalovaki and Visanti Makrava who were members of some of those geological mapping field trips. Theirs was the task of providing the geological information to be incorporated into the grid that the Ministry had prepared to organise the surface and sub-surface information that is (or should be) fundamental to any land development plans in the nation.

During this conference, a presentation by a young graduate geologist from the Mineral Resources Department (MRD) discussed a "Seamless Geological Mapping Project" currently being undertaken by the MRD geologists to reconcile the geological map sheets with what is on the ground particularly at the borders of the areas covered by different map sheets adjacent to each other. The basis of this seamless geological mapping project are the geological maps that were prepared in the 60's by geologists like the late Peter Rodda who



endured the rough terrains of the islands for weeks and months to capture the information we are using today.

While Peter also had interest in other art forms – e.g. acting in plays at the Suva Play House; and being an accomplished pianist – the fabric of his adult life was interwoven with the Geology of Fiji; so much so that Fiji refused to let him go in the end.

The dedicated session at the STAR 2018 Conference, the small display table of a tiny portion of his life's work, even the smartly appointed lunch deck constructed into the MRD landscape and the fossil mollusk species named after him are just us trying to salute him then covering our faces against the brightness of such a luminary that was Peter Rodda – the STAR Network salutes and acknowledges with the deepest respect and admiration the gargantuan legacy of the late great Peter Rodda of the Geological Survey of Fiji.



### ***STAR 2018 Participation***

Pacific island nations' participation was from Papua New Guinea, Samoa and Vanuatu and of course the host country, Fiji. Delegates from regional and academic institutions based in Fiji were in attendance as well as delegates from agencies based in Australia, Japan and New Zealand. About ninety-two (92) participants attended the various sessions with a STAR senior member, Ms Sara Beavis of the Australian National University (ANU), bringing about twenty students of the ANU to attend the day last days' sessions. Her ANU class was on a field trip in Fiji. A handful of recent graduates of the University of the South Pacific who are new recruits to the Ministry of Lands and Minerals were also present at certain sessions.



The full list of registered participants to the STAR 2018 can be found in Annex 1.




Participants to the Official Opening of the STAR 2018 Conference at the Holiday Inn, Suva, pictured with Chief Guest – Honourable Faiyaz Siddiq Koya, Minister for Industry, Trade, Tourism, Lands and Mineral Resources. The Fiji Government, through the Lands and Mineral Resources departments, has hosted the STAR annual conference event for the third consecutive year.

### 3.3 – Fund Raising

The primary sponsors for the STAR 2018 conference were the Government of Fiji, and the Pacific Community through its GEM Division. Donations were received from the Australian Volcanological Investigations (AVI); the Korean Institute of Ocean Science and Technology (KIOST) and Standard Concrete Industries Limited; and the STAR Steering Committee accepts these donations with gratitude.

Conference fees for 2018 were charged at \$FJ250 for overseas delegates; \$100 for Pacific island nationals; and students (currently enrolled in a tertiary institution) were charged at \$FJ50. The early bird discounted rate (\$FJ200) was not used by anyone in 2018. The fee structure can be found in the Second Circular which is available for download from the website. The bulk of overseas potential participants were enquiring about payment by credit card; as this is the most convenient method of payment. Payments are currently received via bank to bank transfer for prepayments or via cash payments at registration on arrival at the conference venue.

The Financial Reporting is now the responsibility of the STAR Steering Committee given that this is the first conference convened by a completely independent STAR Network. Financial reporting in 2018 was completed by STAR Steering Committee member Mrs Litia Waradi and is Section 4 in this report.



### 3.4 – STAR 2018 Business Meeting/3<sup>rd</sup> Annual General Meeting of STAR

The Third AGM/Business Meeting 2018 was held immediately following the conclusion of the programme of presentations in the late afternoon of Thursday, 12<sup>th</sup> July 2018.

While there were no working group meetings convened during the STAR 2018; the Chair of STAR urged the co-conveners of the GeoResources and the Geothermal working groups to be aware and retain interest as the potential in the Pacific in these areas remain high priority.

The Education Working Group co-Convener, Ms Sara Beavis, reported that members were closely involved with the recently established Fiji National University's Geoscience and Certificate Course, which has already enrolled students for the 2018 academic year. The working group provided a set of teaching notes; and microscope and laboratory equipment were donated to the new course through the ANU.

The minutes of the 3<sup>rd</sup> AGM of the STAR is attached to this document as Annex 2.

#### **STAR 2019**

The 3<sup>rd</sup> AGM (Business Meeting 2018) agreed to leave the decisions on the date, theme and venue of STAR 2019 to the STAR Steering Committee.

### 3.5 – STAR Website and E-mail Group List

The STAR website address as at August 2018 (the publication date of this Annual Report): still is <star.gsd.spc.int>. This is an important point of contact for the STAR Steering Committee that is next in line to be transferred to a new and more permanent address; and certain committee members are already exploring options.

From a quick exploration of the re-vamped SPC website and noting that the STAR page is attached to an already redundant link using the old acronym (GSD) of the name that the SPC GEM Division was known by prior to the name change in late 2017; the transfer of the data from the old GSD page to a new website for the now independent STAR is a priority item on the STAR Steering Committee's agenda for the latter part of 2018.

Due to the soon to be implemented changes with respect to STAR's online presence and its group email address, people interested in subscribing to the STAR group email list are advised to send expressions of interest to the email addresses of the committee members listed in Annex 1.

All documents referred to in this annual report can still be accessed from the current address; and the SPC is acknowledged for hosting the STAR online presence for the years since it took over the STAR's old host (SOPAC), until STAR's exit in 2018.



## 4 – FINANCIAL REPORT

### 2018 STAR FINANCIAL REPORT

1. Funds Received	\$33,029.01
2. Fiji Government Contribution	\$20,000.00
3. Geoscience, Energy and Maritime Division (SPC)	\$10,000.00
4. Industrial sponsorship and Registration Fees (i) Standard Concrete Industries, (ii) KIOST	\$17,684.56
5. Sundry Income	\$665.63

**Total funds received** \$81,379.20

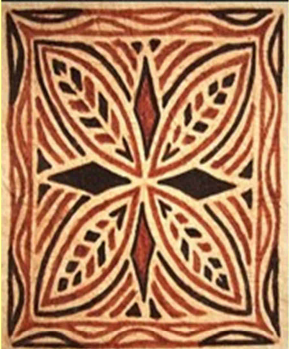
### Expenditures

The Expenditure involved direct expenses included:

1) Holiday Inn Conference charges	\$21,172.00
2) Consultancy costs – RedIT	\$10,500.00
3) Operating and Miscellaneous costs	\$5,988.49

**Total Expenditure** \$37,660.49

**Balance of funds available** \$43,718.71



## 5 – ACKNOWLEDGEMENT OF DONORS AND SUPPORTERS

As mentioned under fundraising – the Government of Fiji and the Pacific Community were the primary financial sponsors for the STAR 2018 conference. There were also smaller financial donations by projects and agencies that run operations in the fields of common interest with STAR, in Fiji and in other Pacific island countries.

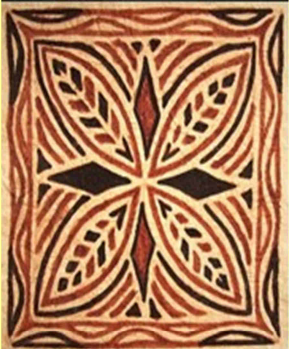
For the record, the Government of Fiji, the Pacific Community, KIOST, Standard Concrete, AVI and last but not least, the UNDP Neglected Development Minerals Project, are gratefully acknowledged for their donations in cash and kind to the convening of the STAR 2018. The EU-UNDP Neglected Minerals Project is particularly acknowledged for directing the current strong focus in the last two conferences on an under-reported resource sector that is basic to the construction of road and building infrastructure. The resource that underpins this sector, while present in nature can be in locations that are sometimes ‘unwisely’ zoned as residential or agricultural making access to it a challenge; or they can be being exploited and extracted from environments and using methods that are not sustainable..

The consistent support of these donors to the work of the STAR Steering Committee during its struggle to establish the STAR as an independent network is highlighted here for special mention.

## 6 – FORWARD THINKING

### a) FURTHER DEVELOPMENT OF STAR

- (i) The STAR Network has a draft Constitution from the STAR 2017 which has not been progressed beyond what was made available at the 2<sup>nd</sup> AGM. The draft Constitution was necessary to exist in 2017 because it was one of the required documents for opening the new bank account. Work to refine the Constitution moves up on the priority list for consideration by the Steering Committee.
- (ii) The talk given at the end of the STAR 2018 programme of presentations and just prior to the Business Meeting on the Pacific GIS and Remote Sensing Council demonstrated a model for the future that the STAR Steering Committee has noted. The conversation is yet to take place among Network members about the form that the STAR will reconstitute itself to most efficiently carry out its primary function of organising the annual STAR conference; and this is related to the refinement of the Constitution.
- (iii) The Pacific GIS and Remote Sensing Council in its presentation also placed before the STAR Network a proposal for the year 2020 – to hold the STAR 2020 conference back to back with the Pacific GIS and Remote Sensing Conference 2020 in Port Vila, Vanuatu. The STAR Network is quietly enthused with the proposal but appreciates the mammoth task ahead of it to actually make it happen. Watch this space!



## b) SUGGESTIONS FOR IMPROVEMENTS TO CONFERENCE

With certain higher-order independence aspects of the STAR gained after transfer of STAR funds from out of the SPC into its own bank account; the following suggestions for improvements to the conference are collated from the observations of participants at the STAR 2018:

- Presented by the co-Convener of the Education Working Group, Ms Sara Beavis, and approved during the 2018 Business Meeting – an option will be explored immediately for future STAR conferences to offer alternatives to the traditional geological field trip (e.g. workshop or mini-course on a popular subject with exposure to practical applications) to draw younger professionals and undergraduates about to complete study programmes.
- Credit card payment mode for registration fees is the preferred payment mode of the majority of overseas participants, borne out by the data from having run conferences from 2016 to 2018. This should seriously be explored with the Bank that hosts the STAR account. A credit card payment facility should be set up with the host bank in time for the next conference. If payment of the conference fee becomes too time consuming, complicated and expensive, this can be the difference between attendance and non-attendance by an overseas participant who has a choice of other places to go.

The suggestions below were also heard during the Business Meeting, all of which are reminders:

- (i) advertise the conference earlier;
- (ii) select a venue that is attractive to people to make them want to bring their family;
- (iii) choose a theme that is catchy for the time; and
- (iv) avoid timing conflicts with other major events that are targeting the same people.

Finally, the improvements to the conference as recorded in the STAR 2016 Annual Report remain relevant, given that some are actually being re-aired at certain time markers in the independent STAR's journey.



## ANNEX 1

### A – STAR 2018 Participants List:

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Ministry of Lands & Mineral Resources  
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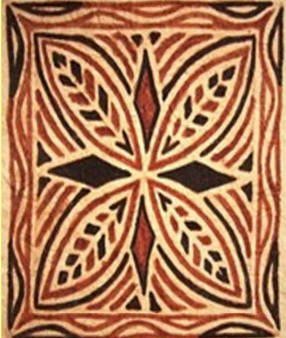
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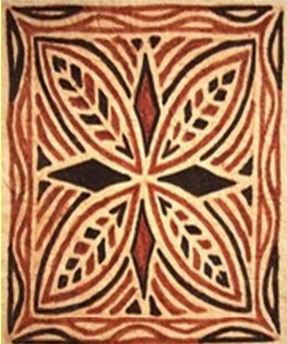
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## ANNEX 2

### STAR 2018

## Minutes of Business Meeting & 3<sup>rd</sup> Annual General Meeting

Thursday, 12<sup>th</sup> July 2018  
Holiday Inn, Suva, Fiji

#### 1. Call to Order

Chair of STAR, Mr Malakai Finau, Permanent Secretary of Lands and Mineral Resources, called the 3<sup>rd</sup> Annual General Meeting and Business Meeting of the STAR Network to order after he formally closed the programme of presentations for the STAR 2018 Conference.

#### 2. Adoption of Agenda

The circulated agenda with the following items was adopted:


- Call to Order
- Adoption of Agenda
- STAR 2018 Chair's Report
- STAR Way Forward
- Election of Chair of STAR 2019
- Date, Venue and Theme of Next STAR Conference
- Education Working Group Proposal for STAR 2019 Conference
- Other Matters

#### 3. STAR 2018 Chair's Report

Chair of STAR presented a brief verbal report on the activities of the STAR Steering Committee and its main preoccupations for the year 2018. He alluded to the Heads of Geosciences Meeting organised in 2015 by the Geoscience Division of the Pacific Community (SPC), where Fiji was elected to be Chair of the STAR Network in a bid to retrieve it from where it was hung after the absorption of SOPAC into SPC. He stated that the two main preoccupations of the STAR Steering Committee were: (1) getting the STAR separated from SPC; and (2) organising the STAR 2018 Conference that had just concluded.

Chair referred back to the presentation on the Pacific GIS and Remote Sensing Council which was heard just prior to the AGM/Business Meeting that articulated all the steps that had to be gone through before any type of organisation could open a bank account in Fiji. A constitution; annual general meeting minutes; a board of trustees were some of the requirements; and the STAR Steering Committee met all of the requirements, and the transfer of STAR funds from SPC into a separate bank account in the name of the STAR Network was achieved in February 2018.

The Fiji Government, through its representative Mr Malakai Finau as Chair of STAR, had now run three meetings with major financial support from the Ministry of Lands and Mineral Resources. He reminded that in the way forward, there was still a refinement process



pending on what the STAR is to become in this rebirth – a non-government organisation was one model proposed.

Chair concluded his report by singling out the critical support by the Geoscience, Energy and Maritime (GEM) Division of the Pacific Community; and acknowledged by name the GEM staff who remained key members of the STAR Steering Committee even though the network was now weaned away from SPC.

#### **4. Way Forward**

Chair introduced agenda item 4 with a reminder that the previous AGM had agreed that the draft constitution circulated in 2017 was “an interim document for further review” and that a sub-committee be tasked with the job of refining it for consideration by this AGM; however, this did not happen because most of the late 2017 and early 2018 STAR Committee Meetings were on the efforts to get the STAR into a stand-alone, independent status, and then time crept up on the Committee whereby it became top priority just to get the STAR 2018 Conference organised.

Chair then referred to the working groups formed under the revived STAR in 2015/2016, namely the GeoResources Working Group and the Geothermal Working Group. While they were formed at that point due to special interest in the certain sectors (the GeoResources Working Group was a special interest due to the termination of the EU-SPC Deep Sea Mining Project; and the Geothermal Working Group was a special interest of both the former Director and Deputy Director of the Geoscience Division of SPC). Chair emphasised that in the interest of moving georesources (geothermal being an appropriate resource) and geosciences forward, that these working groups were also appropriate to exist.

Chair thanked the members of the Education Working Group [formed in 2016], and its main three proponents Sara Beavis of Australian National University (ANU), Russell Howorth of Matadrevula Advisory Services and Paul Taylor of Australian Volcanological Investigations for certain outcomes of efforts by members of the group (see Other Matters).

Chair also mentioned that Ms Beavis had an Education Working Group proposal to put before the meeting later; and he thanked her for bringing the [20+] ANU students, who attended the final day's sessions of the STAR 2018 Conference.

#### **5. Election of Chair of STAR 2019**

Chair of STAR called for nominations for Chair of STAR 2019.

Robert Smith of GEM proposed that Mr Malakai Finau continue in the Chair, given that there was a proposal before the meeting to make a goal of holding the STAR 2020 Conference back to back with the 2020 Pacific GIS and Remote Sensing Conference to be hosted by Vanuatu. The proposal was seconded by Raijeli Taga, Director of Lands, Fiji.

Mr Malakai Finau, Permanent Secretary of the Lands and Mineral Resources, was re-elected Chair of STAR.

#### **6. Date, Venue and Theme of Next STAR Conference**

The suggestion by the Chair that the date, venue and theme of the next STAR Conference be decided by the STAR Steering Committee was accepted by the meeting.

#### **7. Education Working Group Proposal for STAR 2019 Conference**

Chair invited Ms Sara Beavis to put forward the Education Working Group proposal for the STAR Conference, that she had discussed with him prior to the Business Meeting.



The proposal was for a second option to the traditional field trip that is a standard feature of the STAR Conference as it is for typical geoscience conferences. The second option put forward was a capacity building workshop for the younger professionals on whatever was topical at the time of the conference as a targeted opportunity and way of attracting to STAR the younger professionals studying or working in the field of geosciences.

Wolf Forstreuter of GEM (SPC) stated that the idea was a good one and reported that the 2018 GIS and Remote Sensing Conference was planning seven workshops within the conference period. He said it offered an opportunity to get into a new field and gain practical experience, and this was a good strategy for STAR to adopt to attract more people to attend the STAR conference.

Gary Greene of the Circum-Pacific Council was not enamored with the workshop being a second option to (and in conflict with) the field trip; and said that he was more accustomed to seeing a workshop prior to a conference; and that since the workshop would be presumably self-funded like the field trip, then people would have the option of attending both.

Wolf Forstreuter (GEM) didn't see any conflict between the workshop and the field trip as he thought most that don't attend the field trip would attend the workshop; and drawing again from the example of the GIS and Remote Sensing Conference, he said that timings of all the seven workshops at the 2018 conference were in conflict with each other.

Given the consensus that the proposal had good potential, Ms Beavis proposed that the Education Working Group take responsibility for exploring the idea further, and finding out what sort of workshops might benefit the broader geoscience community, members of which could be attracted to future STAR conferences. Furthermore, based on feedback the Education Working Group could start searching for appropriate support and facilitator(s) of workshop(s).

The direction proposed by Ms Beavis was seconded by Dr Raijeli Taga, Director of Lands (Fiji), for the Education Working Group to work out the options to take and then put it to the Steering Committee to run with it.

Matt Blacka of the University of the New South Wales (UNSW) strongly urged that the young professionals working in the geosciences be consulted about what they would like to see in a workshop.

Chair voiced the agreement of the meeting to the proposal and the direction it would take with the Education Working Group moving forward with exploring the options in consultation with the various geoscience special interest groups.

## 8. Other Matters

- a) Chair reiterated the need for the working groups of Georesources and Geothermal to be revitalised.
- b) Sara Beavis reported to the meeting an outcome of the efforts by members of the Education Working Group, which is associated with the recently established Fiji National University Geoscience and Certificate Course. The working group provided a set of teaching notes; and microscope and laboratory equipment were donated to the new course through the ANU. The new Course was a well-resourced opportunity for people interested in geoscience training from the across the Pacific to access.
- c) Akuila Tawake of GEM (SPC) commended the increased participation by locals and particularly staff of the Ministry of Lands and Mineral Resources in the STAR 2018 conference and suggested that this was a good opportunity to also invite other ministries to engage. Mr Tawake also noted the marked absence of participation of scientists from outside the region (referred to in the old SOPAC days as the Technical Advisory Group); and from other Pacific island countries. He wanted it noted in the Business Meeting minutes that STAR needed to find cost-effective ways



to ensure participation from these two particular groups in future STAR conferences. Mr Tawake supported the idea of having STAR conferences in other countries, in association with other regional meetings – given that there were numerous meetings going on in the Pacific region throughout the year. Chair agreed with Mr Tawake’s remarks and that these would be good strategies in the way forward.

- d) Gary Greene picked up a thread in Mr Tawake’s remarks about the “Technical Advisory Group” – explaining that in those years there had been major international research cruise programmes that were put through SOPAC and that these had all dropped off. With STAR being an independent organisation, it would need to go out to obtain the funds to support itself, which it didn’t have to do before. In Professor Greene’s view, STAR has a major role internationally in the sense that it should be drawing scientists from elsewhere; and he articulated the following strategies to do so: (i) advertise the conference earlier; (ii) select a venue that is attractive to people to make them want to bring their spouses (even their family); (iii) choose a theme that is catchy for the time (for example discussing deepsea mining policy and environment would attract a whole host of people who would think of attending just to hear what you have to say about it); and (iv) avoid timing conflicts with other major events that are targeting the same people.
- e) Matt Black (UNSW) agreed with the point about advertising the conference earlier. Mr Black was aware of at least four events in Australia that people attend that are all working in the Pacific on one project or another. While he had been using the opportunities presented when he attended these events to raise awareness about STAR, he further encouraged that similar events be used to advertise and promote to more universities in Australia and New Zealand what the STAR Group was hoping to achieve and what was going on in the Pacific – and the more time available to spend on this promotion work the better.

There being no further matter raised under “Other Business” the meeting was adjourned by the Chair at 4:42 pm.

## Attachment to Annex 2

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## ANNEX 3

### FINAL LISTS OF ABSTRACTS AND POSTERS ON DISPLAY

#### A. Final list of abstracts (in the order received)

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2	<b>Philip Yasiro Irapue</b> Mineral Resources Authority, P O Box 1906, Konedobu, Port Moresby 121, NCD, Papua New Guinea Email: <a href="mailto:pirarue@mra.gov.pg">pirarue@mra.gov.pg</a>	Resources for Pacific Communities: A preliminary ground magnetic, resistivity and geological investigations on Deidei geothermal area, Fergusson Island, Milne Bay Province, Papua New Guinea <b>(Presenter no show)</b>
3	<b>Tomohiko Fukushima</b> Japan Agency for Marine-Earth Science and Technology, Yokosuka JAPAN E-mail: <a href="mailto:fukushimat@jamstec.go.jp">fukushimat@jamstec.go.jp</a>	Distributions of Megabenthos in the Pacific Ocean
4	<b>Titimanu Simi</b> Disaster Management Office, Ministry of Natural Resources and Environment, Apia, Samoa Email: <a href="mailto:titi.simi@mnre.gov.ws">titi.simi@mnre.gov.ws</a>	Risk and Loss Modelling in Samoa
5	<b>Johnny Nimau<sup>1</sup>, Esline Garaebiti<sup>2</sup>, Peter Korisa<sup>1</sup>, Juliana Ungaro<sup>3</sup></b> <sup>1</sup> National Disaster Management Office, PMB 9107, Port Vila, Vanuatu, <sup>2</sup> Geohazards Division, Vanuatu Meteorology and Geohazards Department, PMB 9054, Port Vila, Vanuatu, <sup>3</sup> National Institute of Water and Atmospheric Research (NIWA), New Zealand. Email: <a href="mailto:johnie@vanuatu.gov.vu">johnie@vanuatu.gov.vu</a> / <a href="mailto:tarijohnny@gmail.com">tarijohnny@gmail.com</a>	Modelling disaster risk in Vanuatu
6	<b>Kevin Mackay<sup>1</sup>, Geoffroy Lamarche<sup>1</sup>, Helen Neil<sup>1</sup>, Vaughan Stagpoole<sup>2</sup>, Jenny Black<sup>2</sup>, Adam Greenland<sup>3</sup></b> <sup>1</sup> National Institute of Water and Atmospheric Research (NIWA), Wellington, New Zealand, <sup>2</sup> GNS Science, Wellington, New Zealand, <sup>3</sup> Land Information New Zealand (LINZ), Wellington, New Zealand Email: <a href="mailto:kevin.mackay@niwa.co.nz">kevin.mackay@niwa.co.nz</a>	100% of the World Ocean floor mapped by 2030 - Contribution of the South and West Pacific Regional Data Assembly and Coordination Centre to the Seabed 2030 initiative
7	<b>Yoji Miyata</b> Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan E-mail: <a href="mailto:miyatay@jamstec.go.jp">miyatay@jamstec.go.jp</a>	Challenges of Environmental Impact Assessment for Deep Sea Mining: Case Studies from Existing Offshore Mining Projects
8	<b>Eileen T Mosusu<sup>1</sup>, Joeli Mosusu<sup>2</sup> and Nathan T Mosusu<sup>3</sup></b> <sup>1</sup> Faculty of Science, Technology and Environment, University of South Pacific, Private Mail Bag, Suva, Fiji Islands <sup>2</sup> Eda Ranu, P.O. Box 1084, Waigani, NCD, Papua New Guinea <sup>3</sup> Geological Survey Division, Mineral Resources Authority P.O. Box 1906, Port Moresby NCD. Papua New Guinea Email: <a href="mailto:s11132134@student.usp.ac.fj">s11132134@student.usp.ac.fj</a> <a href="mailto:joeli.mosusu@gmail.com">joeli.mosusu@gmail.com</a> , <a href="mailto:nmosusu@mra.gov.pg">nmosusu@mra.gov.pg</a>	Coastal marine pollution: the need for inclusive participation of traditional villages in rapidly changing coastal cities.
9	<b>Gary M. McMurtry<sup>1</sup>, James R. DeLuze<sup>2</sup>, and James E. Blessing<sup>3</sup></b>	Field-Portable Helium Isotope Detector for Continuous Monitoring of Large Earthquakes



	<p><sup>1</sup>SOEST, University of Hawaii, Honolulu, Hawaii 96822 USA, <sup>2</sup>Fusion Energy Solutions of Hawaii, 611 University Avenue, Apt. 301, Honolulu, HI 96826 USA <sup>3</sup>MKS Instruments, Inc., 3635 Peterson Way, Santa Clara, CA 95054 USA          Email: <a href="mailto:mcmurtry@hawaii.edu">mcmurtry@hawaii.edu</a>, <a href="mailto:jrdeluze@icloud.com">jrdeluze@icloud.com</a>, <a href="mailto:James_Blessing@mksinst.com">James_Blessing@mksinst.com</a></p>	and Volcanic Unrest
10	<p><b>Robert Smith</b>          Geophysicist, Geosciences, Energy and Maritime Division, Pacific Community          Email: <a href="mailto:Roberts@spc.int">Roberts@spc.int</a></p>	Urban geology, pitfalls in land zoning without geology impinges on resource utilization
11	<p><b>Sandip Chand<sup>1</sup>, Keresi Tuimanono<sup>2</sup>, Sefanaia Seva and Temo Sorovaki</b>          Mineral Resources Department, Government of Fiji, Suva, Fiji          Email: <sup>1</sup><a href="mailto:sandip.chand@govnet.gov.fj">sandip.chand@govnet.gov.fj</a>; <sup>2</sup><a href="mailto:keresi.tuimanono@govnet.gov.fj">keresi.tuimanono@govnet.gov.fj</a></p>	Mineral Investigation Project (Poster and Magazine)  <b>(POSTER 1)</b>
12	<p><b>Sandip Chand<sup>1</sup>, Agnes Hansen, Keresi Tuimanono<sup>2</sup>, and Samisoni Raiwalui<sup>3</sup></b>          Mineral Resources Department, Government of Fiji, Suva, Fiji          Email: <sup>1</sup><a href="mailto:sandip.chand@govnet.gov.fj">sandip.chand@govnet.gov.fj</a>; <sup>2</sup><a href="mailto:keresi.tuimanono@govnet.gov.fj">keresi.tuimanono@govnet.gov.fj</a>; <sup>3</sup><a href="mailto:samisoni.raiwali@govnet.gov.fj">samisoni.raiwali@govnet.gov.fj</a></p>	Seamless Geological Mapping Project
13	<p><b>Vani Koroisamanunu and Litia Takalaiyale</b>          Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Islands          Email: <a href="mailto:vani.dakuwaga@govnet.gov.fj">vani.dakuwaga@govnet.gov.fj</a>, <a href="mailto:litia.takalaiyale@mrd.gov.fj">litia.takalaiyale@mrd.gov.fj</a></p>	GIS Application on Environment Monitoring for River Gravel Extraction
14	<p><b>Matt Blacka, Chris Drummond, Priom Rahman and Brett Miller<sup>1</sup></b>  <sup>1</sup>Water Research Laboratory, School of Civil &amp; Environmental Engineering, UNSW Sydney, 110 King Street, Manly Vale, NSW 2093, Australia          Email: <a href="mailto:m.blacka@wrl.unsw.edu.au">m.blacka@wrl.unsw.edu.au</a></p>	Geospatial Mapping and Hydrodynamic Investigations of Muri Lagoon and Avana Harbour, Rarotonga, Cook Islands
15	<p><b>Isei Rayawa</b>          Mineral Resources Department, Government of Fiji, Suva, Fiji          Email: <a href="mailto:isei.Rayawa@mrd.gov.fj">isei.Rayawa@mrd.gov.fj</a></p>	Waciwaci District School Relocation <b>(POSTER 2)</b>
16	<p><b>Isei Rayawa</b>          Mineral Resources Department, Government of Fiji, Suva, Fiji          Email: <a href="mailto:isei.Rayawa@mrd.gov.fj">isei.Rayawa@mrd.gov.fj</a></p>	Relocation of Narikoso, Ono Kadavu Island Group <b>(POSTER 3)</b>
17	<p><b>Semi Bolalailai, Epeli Maisema, Jervis Robinson, Melaia Baba</b>          Ministry of Foreign Affairs, Fiji Hydrographic Service, Mineral Resource Department  <a href="mailto:semi.bolalailai@govnet.gov.fj">semi.bolalailai@govnet.gov.fj</a></p>	Fiji Maritime Boundaries Project – Maritime Affairs Coordinating Committee
18	<p><b>Sara Beavis<sup>1</sup>, Nicholas Metherall<sup>1</sup>, Kat Vincent<sup>1</sup>, and Evangeline Packett<sup>1</sup></b>  <sup>1</sup>Fenner School of Environment and Society, Australian National University, Canberra, Australia          Email: <a href="mailto:sara.beavis@anu.edu.au">sara.beavis@anu.edu.au</a></p>	River extractive industries: how citizen science can fill the gaps
19	<p><b>Diocel Harold M. Aquino<sup>1</sup>, Regan Potangaroa<sup>2</sup>, Suzanne Wilkinson<sup>1</sup>, Gary M. Raftery<sup>1</sup></b>  <sup>1</sup>The University of Auckland, Auckland, New Zealand  <sup>2</sup>Victoria University of Wellington, Wellington, New Zealand          Email: <a href="mailto:d.aquino@auckland.ac.nz">d.aquino@auckland.ac.nz</a></p>	Post-Disaster Structural Assessment Using Drones  <b>(Presenter withdrew Attendance)</b>
20	<p><b>Edward Anderson</b>          Aquatic Science Pacific and School of Marine Studies, University of the South Pacific, 252 Barker Road, Suva, Fiji          Email: <a href="mailto:aquascipac@gmail.com">aquascipac@gmail.com</a></p>	Salt Water Intrusion into the Rewa River, Fiji: the Effects of Climate, River Flow and Tide



21	<p><b>Mohamed Elkhartouty<sup>1</sup>, Sandeeka Mannakkara<sup>2</sup>, Regan Potangaroa<sup>3</sup>, Suzanne Wilkinson<sup>4</sup></b>  <sup>1</sup>The University of Auckland, Private Bag 92019, Auckland Mail Centre, Auckland 1142, New Zealand  <sup>2</sup> The University of Auckland, Private Bag 92019, Auckland Mail Centre, Auckland 1142, New Zealand  <sup>3</sup>Victoria University of Wellington, Kelburn, Wellington 6012, New Zealand  <sup>4</sup>The University of Auckland, Private Bag 92019, Auckland Mail Centre, Auckland 1142, New Zealand  Email: <a href="mailto:melk754@aucklanduni.ac.nz">melk754@aucklanduni.ac.nz</a>,  <a href="mailto:s.mannakkara@auckland.ac.nz">s.mannakkara@auckland.ac.nz</a>, <a href="mailto:Regan.Potangaroa@vuw.ac.nz">Regan.Potangaroa@vuw.ac.nz</a>  <a href="mailto:s.wilkinson@auckland.ac.nz">s.wilkinson@auckland.ac.nz</a></p>	<p>Post Disaster Reconstruction in Fiji : A comparative Between Different Housing Construction Methods</p> <p><b>(Presenter no show)</b></p>
22	<p><b>Evlyn Mani, Molly Powers Tora, Zulfikar Begg</b>  Oceans &amp; Maritime Programme, GEM Division, Pacific Community, Suva, Fiji  Email: <a href="mailto:evlynm@spc.int">evlynm@spc.int</a></p>	<p>Ocean Literacy to sustainably manage our Oceans!</p>
23	<p><b>Jens Kruger, Malakai Vakautawale, Andrick Lal, and Filimoni Yaya</b>  Oceans and Maritime Program Geoscience, Energy and Maritime Division Pacific Community (SPC).  Email: <a href="mailto:jensk@spc.int">jensk@spc.int</a></p>	<p>Pacific Islands Regional Maritime Boundaries</p>
24	<p><b>Moritz Wandres</b>  Pacific Community (SPC), Suva, Fiji.  E-mail: <a href="mailto:moritzw@spc.int">moritzw@spc.int</a></p>	<p>Development of a coastal hazard early warning system for Tuvalu</p>
25	<p><b><sup>1</sup>Molly Powers-Tora, <sup>1</sup>Zulfikar Begg, <sup>1</sup>Herve Damlamian, <sup>2</sup>Grant Smith, <sup>2</sup>Ben Hague</b>  <sup>1</sup>Ocean Literacy and Maritime Capacity, Pacific Community (SPC),  <sup>2</sup>Bureau of Meteorology Australia  Email: <a href="mailto:mollyp@spc.int">mollyp@spc.int</a></p>	<p>Navigating the Pacific Ocean Portal: a key regional tool for ocean observations and analysis</p>
26	<p><b>Herve Damlamian<sup>1</sup>, Moritz Wandres<sup>1</sup>, Jens Kruger<sup>1</sup>, Naomi Jackson<sup>1</sup>, Judith Giblin<sup>1</sup>, Cyprien Bosserelle<sup>2</sup>, Zulfikar Begg<sup>1</sup>, Salesh Kumar<sup>1</sup>, Poate Degei<sup>1</sup>, Martin Sokomanu<sup>2</sup>, Noel Naki<sup>2</sup>, Tony Kanas<sup>2</sup>, Robson Aru<sup>2</sup></b>  <sup>1</sup>. Pacific Community (SPC), <sup>2</sup>. Ministry of Lands and Natural Resources, Vanuatu  Email: <a href="mailto:herved@spc.int">herved@spc.int</a></p>	<p>Probabilistic tropical cyclone driven inundation Hazard assessment for Lenakel, Tanna Island, Vanuatu</p>
27	<p><b>Naomi Jackson<sup>1</sup>, Judith Giblin<sup>1</sup>, Herve Damlamian<sup>1</sup>, Zulfikar Begg<sup>1</sup>, Salesh Kumar<sup>1</sup>, Poate Degei<sup>1</sup>, Jens Kruger<sup>1</sup>, Martin Sokomanu<sup>2</sup>, Noel Naki<sup>2</sup>, Tony Kanas<sup>2</sup>, Robson Aru<sup>2</sup></b>  <sup>1</sup>Pacific Community (SPC), <sup>2</sup>Ministry of Lands and Natural Resources, Vanuatu  Email: <a href="mailto:naomij@spc.int">naomij@spc.int</a></p>	<p>Production of a seamless baseline data with application to tsunami hazard assessment for Lenakel, Tanna Island, Vanuatu</p>
28	<p><b>Sakaraia V. Malodali</b>  Mineral Resources Department, Government of Fiji, Suva, Fiji  Email: <a href="mailto:sakaraia.malodali@govnet.gov.fj">sakaraia.malodali@govnet.gov.fj</a></p>	<p>Development and Upgrade of the Fiji Seismic Network over the years</p>
29	<p><b>Kataebati Bataua, Wolf Forsteuter</b>  SPC-GEM  Email: <a href="mailto:kataebatib@spc.int">kataebatib@spc.int</a></p>	<p>Accuracy Assessment of Coconut Palm Counting with Very High Resolution Image Data</p>
30	<p><b>Akata Takala<sup>1</sup>, Meizyanne Hicks<sup>2</sup>, Viliame Waqa<sup>3</sup></b>  GIM Division, Lands Department, 2018  Ministry of Lands and Mineral Resources, HQ, GCC Complex, Nasova Road, Nasese, Suva, Fiji  Email: <a href="mailto:meizyanne.hicks@govnet.gov.fj">meizyanne.hicks@govnet.gov.fj</a></p>	<p>UAV photography: Challenges for collection of imagery for mapping</p>
31	<p>(Iliesa Bacita) Sandip Chand, Samisoni Raiwalui</p>	<p>Gamea Landslide <b>(replaced with paper 34)</b></p>
32	<p><b>Nileshni Chand, Solomoni Vueti, Vani Koroisamanunu &amp; Sovaia Lewanavua</b></p>	<p>Bauxite Mine Rehabilitation at Nawailevu, Bua In Vanua Levu</p>



	Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Islands Email: <a href="mailto:nileshni@govnet.gov.fj">nileshni@govnet.gov.fj</a> , <a href="mailto:solomoni.vueti@govnet.gov.fj">solomoni.vueti@govnet.gov.fj</a> , <a href="mailto:vani.dakuwaqa@govnet.gov.fj">vani.dakuwaqa@govnet.gov.fj</a> & <a href="mailto:sovaia.lewanavanua@govnet.gov.fj">sovaia.lewanavanua@govnet.gov.fj</a>	
33	<b>Matt Blacka<sup>1</sup>, Tom Shand<sup>2</sup></b> <sup>1</sup> Water Research Laboratory, School of Civil & Environmental Engineering, UNSW Sydney, 110 King Street, Manly Vale, NSW 2093, Australia. <sup>2</sup> Tonkin and Taylor, Level 2, 105 Carlton Gore Rd, Newmarket, Auckland 1023 Email: <a href="mailto:m.blacka@wrl.unsw.edu.au">m.blacka@wrl.unsw.edu.au</a>	Guidance for Design of Coastal Protection Works in the Pacific Islands
34	<b>Iliesa Bacita</b> Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Email: <a href="mailto:iliesa.bacita@govnet.gov.fj">iliesa.bacita@govnet.gov.fj</a>	Geotechnical Assessment: Pull Up of Landslide Assessment for Qamea Island, Taveuni, Fiji Islands
35	<b>Sara Beavis</b> Fenner School of Environment and Society, Australian National University, Canberra, Australia Email: <a href="mailto:sara.beavis@anu.edu.au">sara.beavis@anu.edu.au</a>	'Rivers of gold and quicksilver: ASGM in South east Sulawesi' <b>(Presenter withdrew title, this was a second title submitted on request)</b>
36	<b>Wolf Forstreuter</b> SPC-GEM Email: <a href="mailto:wolff@spc.int">wolff@spc.int</a>	Utilisation of Satellite Image Data in Pacific Islands Countries Journey of a Quarter Century
37	<b>Wolf Forstreuter</b> SPC-GEM Email: <a href="mailto:wolff@spc.int">wolff@spc.int</a>	The Pacific GIS and Remote Sensing Council
38	<b>Hirdeshni Gautam</b> SPC-GEM Geoinformatics Email: <a href="mailto:hirdeshnig@spc.int">hirdeshnig@spc.int</a>	Identifying Forest Degradation through Logging Track Detection – Status of Investigations
39	<b>Bradley Ilg<sup>1</sup>, Bas Berghoef<sup>1</sup>, Sioli Tonga<sup>1</sup>, Adam McWilliams<sup>1</sup>, Franck Magron<sup>1</sup>, Phil Bright<sup>1</sup>, Andrew Hunt<sup>1</sup>, Doug Newdick<sup>1</sup>, Anju Mangal<sup>1</sup>, Vincent Kanimeia<sup>1</sup></b> <sup>1</sup> The Pacific Community-SPC Email: <a href="mailto:bradleyi@spc.int">bradleyi@spc.int</a> , <a href="mailto:johanb@spc.int">johanb@spc.int</a> , <a href="mailto:sioelit@spc.int">sioelit@spc.int</a> , <a href="mailto:adammm@spc.int">adammm@spc.int</a>	The Pacific Data Hub: Bringing disparate Pacific-related data platforms together for the Pacific
40	<b>Aminisitalo Loco, Andreas Antoniou</b> GEM, SPC Email: <a href="mailto:aministail@spc.int">aministail@spc.int</a>	Assessing Electrical Resistivity Tomography for Different Applications – Examples from the Pacific Region <b>(Presented by Peter Sinclair)</b>
41	<b>Simione Naivalu</b> GEM, SPC Email: <a href="mailto:simionen@spc.int">simionen@spc.int</a>	Erosion and Accretion Pattern on Christmas Island from 2002-2017 <b>(POSTER 4)</b>
42	<b>Lanieta Rokotuiwakaya, Vili Tupua, Narendra Chand</b> GEM, SPC Email: <a href="mailto:lanietar@spc.int">lanietar@spc.int</a>	Detecting Forest Change in Fiji between 2006 – 2012 - 2016
43	<b>Peter Sinclair<sup>1</sup>, Aminisitalo Loco<sup>1</sup>, Anesh Kumar<sup>1</sup>, Andreas Antoniou<sup>1</sup>, Sepesa Gauna<sup>2</sup>, Paula Tawakece<sup>2</sup>, Tomasi Naborisi<sup>3</sup>, Nemani Bolaqace<sup>3</sup></b> <sup>1</sup> Pacific Community – Geoscience, Energy, Marine Division, Suva, Fiji, <sup>2</sup> Fiji Meteorological Service – Hydrology Division, Suva, Fiji, <sup>3</sup> Water Authority Fiji – Water Resources Management Unit, Lautoka, Fiji Email: <a href="mailto:peters@spc.int">peters@spc.int</a>	Post flood discharge estimates Ba River, April 2018
44	<b>Noa Tuiloma</b> Community Liaison in Mining Projects by Ifereimi Dau Email: <a href="mailto:noa.tuiloma@mrd.gov.fj">noa.tuiloma@mrd.gov.fj</a>	Resources for Pacific Communities: Community consultation and Participation for Mining projects in Fiji



45	<b>Sachindra Singh</b> GEM, SPC Email: <a href="mailto:sachin1618@gmail.com">sachin1618@gmail.com</a>	Disaster and Climate-Related Geoinformatics Services within SPC
46	<b>Jens Kruger, Molly Powers-Tora, Andrick Lal, Salesh Kumar, Zulfikar Begg, Eylvn Mani, Marika Kalouniviti, Veenil Rattan</b> SPC PGSC Partnership Desk, Oceans & Maritime Programme Geoscience Energy & Maritime Division Pacific Community (SPC) Email: <a href="mailto:pgsc_desk@spc.int">pgsc_desk@spc.int</a>	Pacific Islands Geospatial and Surveying Council <b>(Presenter no show)</b>  Paper withdrawn by Meizyanne Hicks (who was to have presented the paper) 12 <sup>th</sup> July
47	<b>Litia Gaunavou</b> GEM, SPC Email: <a href="mailto:tiagaunavou@gmail.com">tiagaunavou@gmail.com</a>	Simple UAVs in Agriculture <b>(Presenter withdrew Paper &amp; Attendance)</b>
48	<b>Gary M. McMurtry</b> <sup>1</sup> SOEST, University of Hawaii, Honolulu, Hawaii 96822, USA Email: <a href="mailto:mcmurtry@hawaii.edu">mcmurtry@hawaii.edu</a>	The Continuing Kilauea Volcanic Eruption of 2018: It's Different but with Shades of the Past
49	<b>Akata Takala<sup>1</sup>, Lorosio Raikivi<sup>2</sup>, Shaneel Kumar<sup>3</sup>, Veniana Wainiqolo<sup>4</sup></b> Ministry of Lands and Mineral Resources, HQ, GCC Complex, Nasova Street, Nasese, Suva, Fiji Email: <a href="mailto:akata.takala@govnet.gov.fj">akata.takala@govnet.gov.fj</a> , <a href="mailto:lorosio.raikivi@govnet.gov.fj">lorosio.raikivi@govnet.gov.fj</a> , <a href="mailto:shaneel.prakash@govnet.gov.fj">shaneel.prakash@govnet.gov.fj</a> , <a href="mailto:veniana.wainiqolo@govnet.gov.fj">veniana.wainiqolo@govnet.gov.fj</a>	Vanua GIS: A Way Forward to Fiji's GIS Pathway  <b>(Presented by Vilimone Raqona)</b>
50	<b><sup>1</sup>Waganisau, S., <sup>2</sup>Lum, R.</b> Mineral Resources Department, Private Mail Bag, GPO, Suva, Fiji Email: <a href="mailto:sakiusa.waganisau@mrd.gov.fj">sakiusa.waganisau@mrd.gov.fj</a> Email: <a href="mailto:seone.lum@govnet.gov.fj">seone.lum@govnet.gov.fj</a>	Safety Standards in Operating Mines
51	<b>Solomoni Vueti, Vani Koroisamanunu, Nileshni Chand, Sovaia Lewanavanua</b> Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Islands Email: <a href="mailto:solomoni.vueti@govnet.gov.fj">solomoni.vueti@govnet.gov.fj</a> , <a href="mailto:vani.dakuwaqa@govnet.gov.fj">vani.dakuwaqa@govnet.gov.fj</a> , <a href="mailto:nileshni@govnet.gov.fj">nileshni@govnet.gov.fj</a> , <a href="mailto:sovaia.lewanavanua@govnet.gov.fj">sovaia.lewanavanua@govnet.gov.fj</a>	Environmental Monitoring of River Gravel Extraction
52	<b>Jiutiti V Salusalu</b> Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Islands Email: <a href="mailto:jiutiti.salusalu@govnet.gov.fj">jiutiti.salusalu@govnet.gov.fj</a>	Groundwater Exploration in Fiji
53	<b>Marika Ritova</b> Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Islands Email: <a href="mailto:marika.ritova@govnet.gov.fj">marika.ritova@govnet.gov.fj</a>	Influence of Geology on the Vatukoula Narrow Vein Deposit
54	<b>Malakai Tadulala</b> Mineral Resources Department, 241 Mead Road, Nabua, Suva, Fiji Islands Email: <a href="mailto:m.tadulala@mrd.gov.fj">m.tadulala@mrd.gov.fj</a>	Groundwater monitoring in Fiji – past, current and the future
55	<b>Andrew Dansie</b> UNSW Global Water Institute, Room 112, Vallentine Annexe (H22), University of New South Wales, Kensington Campus, New South Wales 2052, Australia Email: <a href="mailto:a.dansie@unsw.edu.au">a.dansie@unsw.edu.au</a>	Source to Sea: Water, sediment and nutrient fluxes in the Pacific environment <b>(POSTER 5)</b> <b>(Presenter's Interest is in participating in Ocean Geoscience, Resources for Pacific Communities)</b>
56	<b>Robert Smith</b> Geophysicist, Geosciences, Energy and Maritime Division, Pacific Community Email: <a href="mailto:Roberts@spc.int">Roberts@spc.int</a>	The Life of Peter Rodda (in Pictures with Narration by Robert Smith)

## B. List of posters on display during programme of presentations (10-12 July)

#	POSTER TITLE	CONTACT DETAILS
1	Basic Industries Limited	Ph: 3311433 Lot 1 Jai Hanuman Road, Vatuwaqa
2	Mineral Resources Department: Mining Division	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
3	Mineral Resources Department – The Land Bank Explore Your Lease Options	Ph: 3307955
4	Mineral Resources Department – The Land Bank We got the land available to suit your investment	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
5	Mineral Resources Department: Geological Services Division Standard Operating Procedure for Groundwater Drilling – Borehole Construction and Development	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
6	Mineral Resources Department: Environment Division Standard Operating Procedure	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
7	Aglime Better Health for Farm Soil	Ph: 3375222
8	Pacific GIS and Remote Sensing Council (PDRSC)	P O Box 3786 Samabula, Suva, Fiji 14 Bhimji Street Wailoku, Suva Ph: 3322193
9	Mineral Resources Department: Geological Services Division Standard Operating Procedure for Geological Mapping	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
10	The Nippon Foundation GEBCO Seabed 2030 Project South and West Pacific Centre	<a href="https://seabed2030.gebco.net/">https://seabed2030.gebco.net/</a>
11	Ministry of Lands and Mineral Resources “Customer”	Head Office, Fijian Trust Fund Complex, Nasese, Fiji South Wing Ground Floor & First Floor P O Box 222, Government Buildings, Suva, Fiji Ph: (679) 3313555 Fax: (679) 3239754 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
12	Ministry of Lands and Mineral Resources “Mission” “Values”	Head Office, Fijian Trust Fund Complex, Nasese, Fiji South Wing Ground Floor & First Floor P O Box 222, Government Buildings, Suva, Fiji Ph: (679) 3313555 Fax: (679) 3239754 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
13	Mineral Investigation Project  Mineral Resources Department Mapping Section, Geological Survey Division	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
14	UNSW: Global Water Institute Source to sea: Water, sediment and nutrient fluxes in the Pacific Environment	A P Danise, G. Leslie Global Water Institute, University of New South Wales Kenington Campus, NSW 2052, Sydney, Australia. Email: <a href="mailto:gwi@unsw.edu.au">gwi@unsw.edu.au</a>



15	Mineral Resources Department: Mine Rehabilitation at Nawailevu	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>
16	Vanua GIS	Applications Team Geospatial Information Management Division Ministry of Lands and Mineral Resources HQ Nasese, Suva, Fiji
17	Ministry of Lands and Mineral Resources Environmental Monitoring of River Gravel Extraction	241 Mead Road, Nabua, Suva, Fiji Ph: (679) 3381611 Fax: (679) 3370039 Website: <a href="http://www.lands.gov.fj">www.lands.gov.fj</a>

# ANNEX 4

## FINAL PROGRAMME OF PRESENTATIONS

TimeWindow	Presenters	Title
<b>Tuesday, 10<sup>th</sup> July 2018 (Day 1)</b>		
<b>Master of Ceremony: Apete Soro</b>		<b>Session 01 – OPENING (separate Programme)</b>
08:00-09:00	-----	Registration
08:30-10:00		Conference Opening
10:00-10:30	-----	----- Morning Coffee -----
<b>Session Chair: Rajjeli Taga</b>		<b>Session 02 – MINERALS &amp; MINING and GEOLOGICAL PROCESSES &amp; GEOLOGICAL MAPPING/MONITORING</b>
10:00-10:20	Solomoni Vueti	Bauxite Mine Rehabilitation at Nawailevu, Bua in Vanua Levu (32)
10:22-10:37	Noa Tuiloma	Resources for Pacific Communities: Community consultation and participation for mining projects in Fiji (44)
10:38-10:45	Jiutiti Salusalu	Groundwater exploration in Fiji (52)
10:45-11:30	Robert Smith	Urban geology, pitfalls in land zoning without geology impinges on resource utilization (10)
<i>5 minutes break given by Session Chair</i>		
11:38-12:07	Gary McMurtry	The Continuing Kilauea Volcanic Eruption of 2018: It's Different but with Shades of the Past (48)
12:07-12:30	Mr Sandip Chand	Mineral Investigation Project (Poster and Magazine) (11)
12:30-13:30	-----	----- Lunch-----
<b>Session 3 Chair: Marika Ritova</b>		<b>Session 03 – REMOTE SENSING APPLICATIONS</b>
13:47-13:57	Ms Hirdeshni Gautam	Identifying Forest Degradation through Logging Track Detection – Status of Investigations (38)
13:59-14:10	Kataebati Bataua	Accuracy Assessment of Coconut Palm Counting with Very High Resolution Image Data (29)
14:10-14:20	Meizyanne Hicks	UAV photography: Challenges for collection of imagery for mapping (30)
14:22-14:30	Lanieta Rokotuiwakaya	Detecting Forest Change in Fiji between 2006 – 2012 – 2016 (42)
14:30-15:30	Vani Koroisamanunu	GIS Application on Environment Monitoring for River Gravel Extraction (13)
15:30-16:00	-----	----- Afternoon Coffee -----
<b>Session 4 Chair: Agnes Hansen</b>		<b>Session 04 – ENVIRONMENTAL &amp; GROUNDWATER MONITORING</b>
15:30-16:09	Edward Anderson	Salt Water Intrusion into the Rewa River, Fiji: the Effects of Climate, River Flow and Tide (20)
16:10-16:25	Nileshni Chand	Environmental monitoring of river gravel extraction (51)
16:25-16:55	Malakai T Tadulala	Groundwater monitoring in Fiji – past, current and the future (54)
19:00-21:00	-----	----- <b>RECEPTION HOSTED BY FIJI GOVERNMENT</b> -----





## Wednesday, 11<sup>th</sup> July 2018 (Day 2)

Session 5 Chair: Apete Soro		Session 05 – RENEWABLE ENERGY/ENVIRONMENTAL MONITORING
09:15-09:50	Matt Blacka	Geospatial Mapping and Hydrodynamic Investigations of Muri Lagoon and Avana Harbour, Rarotonga, Cook Islands (14)
09:50-10:25	Gary McMurtry	Field-Portable Helium Isotope Detector for Continuous Monitoring of Large Earthquakes and Volcanic Unrest (9)
10:25-11:00	-----	----- Morning Coffee -----
Session 6 Chair: Rigieta Ravuiwasa		Session 06 – PETER RODDA MEMORIAL SESSION
11:00-11:30	Marika Ritova	Influence of Geology on the Vatukoula narrow vein deposit (53)
11:30-11:50	Agnes Peter-Hansen	Seamless Geological Mapping Project (12)
11:50-13:00	Robert Smith	The Life of Peter Rodda (56)
12:55-14:00	-----	----- Lunch -----
Session 7 Chair: Asakaia Tabua		Session 07 – DATA AND INFORMATION COLLECTIONS & MANAGEMENT
14:10-14:25	Peter Sinclair	Assessing Electrical Resistivity Tomography for Different Applications – Examples from the Pacific Region (40)
14:25-14:45	Bradley Ilg	The Pacific Data Hub: Bringing disparate Pacific-related data platforms together for the Pacific (39)
14:50-15:20	Wolf Forstreuter	Utilisation of Satellite Image Data in Pacific Islands Countries Journey of a Quarter Century (36)
15:20-15:43	Sachindra Singh	Disaster and Climate-Related Geoinformatics Services within SPC (45)
15:44-15:59	Vilimone Raqona	Vanua GIS: A Way Forward to Fiji's GIS Pathway (49)
16:00-16:22	Molly Powers-Tora	Navigating the Pacific Ocean Portal: a key regional tool for ocean observations and analysis (25)
16:24-16:45	-----	----- Afternoon Coffee -----
Session 8 Chair: Semi Bolalilai		Session 08 – MONITORING TECHNIQUES & TOOLS
16:50-17:07	Yoji Miyata	Challenges of Environmental Impact Assessment for Deep Sea Mining: Case Studies from Existing Offshore Mining Projects (7)
17:11-17:30	Sakaraia V. Malodali	Development and Upgrade of the Fiji Seismic Network over the years (28)
17:30-17:53	Sakiusa Waqanisau/Ratu Seone Lum	Safety Standards in Operating Mines (50)
17:54-18:12	Sara Beavis	River extractive industries: how citizen science can fill the gaps (18)



## Thursday, 12<sup>th</sup> July 18 (Day 3)

<b>Session 9 Chair: Meizyanne Hicks</b>		<b>Session 09 – HAZARD, RISK &amp; POST-DISASTER ASSESSMENT &amp; MODELLING</b>
09:03-09:23	Johnie Tarry Nimau	Modelling disaster risk in Vanuatu (5)
09:24-9:43	Moritz Wandres	Development of a coastal hazard early warning system for Tuvalu (24)
09:43-10:05	Titimanu Simi	Risk and Loss Modelling in Samoa (4)
10:05-10:40	-----	----- Morning Coffee ----- [reconvene 10:40]
<b>Session 10 Chair: Jonati Railala</b>		<b>Session 10 – HAZARD, RISK &amp; POST-DISASTER ASSESSMENT &amp; MODELLING</b>
10:40-10:57	Naomi Jackson/Judith Giblin	Production of a seamless baseline data with application to tsunami hazard assessment for Lenakel, Tanna Island, Vanuatu (27)
10:58-11:14	Iliesa Bacita	Geotechnical Assessment: Pull Up of Landslide Assessment for Qamea Island, Taveuni, Fiji Islands (34)
11:15-11:44	Peter Sinclair	Post flood discharge estimates Ba River, April 2018 (43)
11:45-12:06	Herve Damlamian	Probabilistic tropical cyclone driven inundation Hazard assessment for Lenakel, Tanna Island, Vanuatu (26)
12:07-12:25	Matt Blacka	Guidance for Design of Coastal Protection Works in the Pacific Islands (33)
12:25-13:30	-----	----- Lunch -----
<b>Session 11 Chair: Apete Soro</b>		<b>Session 11 – OCEAN AND HABITAT MAPPING &amp; MANAGEMENT</b>
13:40-14:05	Kevin Mackay	100% of the World Ocean floor mapped by 2030 – Contribution of the South and West Pacific Regional Data Assembly and Coordination Centre to the Seabed 2030 initiative (6)
14:05-14:25	Semi Bolalailai	Fiji Maritime Boundaries Project – Maritime Affairs Coordinating Committee (17)
14:26-14:43	Evlyn Mani	Ocean Literacy to sustainably manage our Oceans! (22)
14:43-15:08	Malakai Vakautawale	Pacific Islands Regional Maritime Boundaries (23)
15:09-15:30	Tomohiko Fukushima	Distributions of Megabenthos in the Pacific Ocean [in order to make EIA for deep sea mining] (3)
15:30-15:45	-----	----- Afternoon Coffee -----
<b>Session 12 Chair: Raijeli Taga</b>		<b>Session 12 – PACIFIC PARTNERSHIPS</b>
15:30-16:04	Wolf Forstreuter	The Pacific GIS and Remote Sensing Council (37)
16:20-17:00	<b>STAR 2018 BUSINESS MEETING</b>	
<b>Friday, 13<sup>th</sup> July 2018 GEOLOGICAL EXCURSION – SUVA PENINSULA</b>		



## ANNEX 5

### ACRONYMS USED IN THIS REPORT

AGM	– Annual General Meeting
ANU	– Australian National University
AVI	– Australian Volcanological Investigations
CPC	– Circum Pacific Council
EEZ	– exclusive economic zone
EU	– European Union
GEM	– Geoscience, Energy and Maritime Division (of SPC)
GIS	– Geographic Information System
GNS	– Institute of Geological and Nuclear Sciences Limited (now GNS Science)
GPO	– General Post Office
GSD	– Geoscience Division (of SPC), renamed in 2017 ‘GEM’
GWI	– Global Water Institute (of UNSW)
IOC	– Inter-Governmental Oceanographic Commission (on the UNESCO)
IUCN	– International Union for Conservation of Nature
JAMSTEC	– Japan Agency for Marine-Earth Science and Technology
KIOST	– Korea Institute of Ocean Science and Technology
MRD	– Mineral Resources Department (Fiji)
NGO	– non-government organisation
NIWA	– National Institute of Water and Atmospheric Research (New Zealand)
PMB	– Private Mail Bag
PNG	– Papua New Guinea
SOEST	– School of Ocean and Earth Sciences and Technology (University of Hawaii)
STAR	– Science, Technology and Resources Network (of the Pacific)
SOPAC	– Pacific Islands Applied Geoscience Commission
SPC	– Pacific Community (or Secretariat of the Pacific Community)
UNDP	– United Nations Development Programme
UNESCO	– United Nations Educational Scientific and Cultural Organisation
UNSW	– University of New South Wales (Australia)