



Pacific
Community
Communauté
du Pacifique

STATUS OF
MARINE SPATIAL DATA INFRASTRUCTURE
IN
PACIFIC ISLAND COUNTRIES

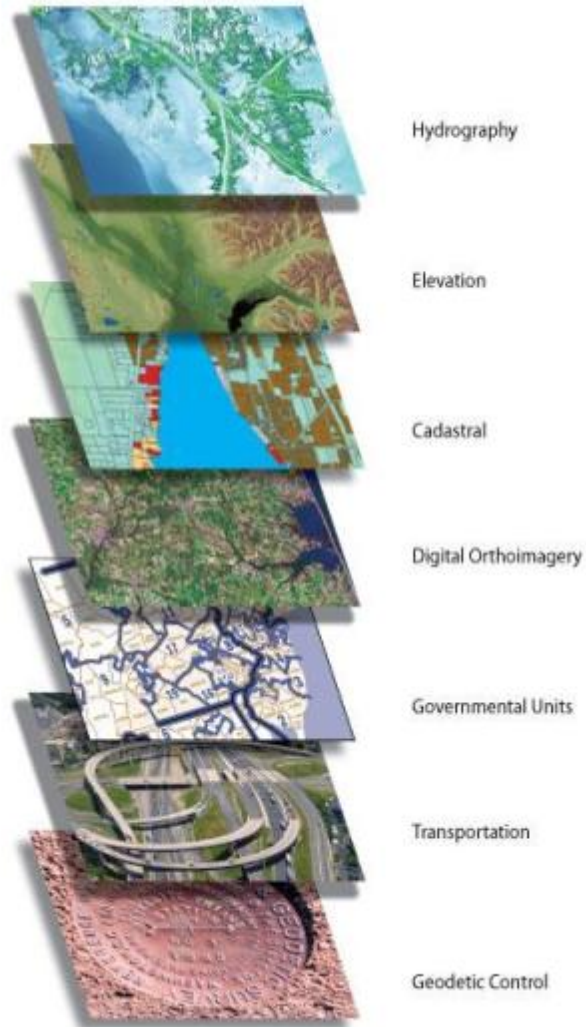


26th January, 2016

**7th IHO Marine Spatial Data Infrastructure Working Group Meeting
Tokyo**

Sachindra Singh
Senior Geospatial Systems Architect
Geoscience Division, Pacific Community

Rehash: What is SDI?



*The term “Spatial Data Infrastructure” (SDI) is often used to denote the relevant base collection of **technologies, policies and institutional arrangements** that facilitate the availability of and access to spatial data. The SDI provides a basis for spatial data discovery, evaluation, and application for users and providers within all levels of government, the commercial sector, the non-profit sector, academia and by citizens in general.”*
– SDI Cookbook

<http://www.gsdi.org/gsdicookbookindex>

An inter-connected set of systems that enables **easy** management, exposure & usage of information across all **spatial data themes**.

Rehash: Why SDI?



Fundamental step towards a fully **Spatially Enabled Pacific Society**.

Empowers **Sound Decision Making** in a Spatial Context

Leverages **Collective Intelligence** across agencies

Sustainable **Economic Development**:



In NZ, Using Geospatial Information contributes **1.2 Billion NZD/year** to NZ Economy

2009 Productivity Report, LINZ, NZ Ministry of Economic Development

<http://www.linz.govt.nz/sites/default/files/docs/geospatial-office/spatial-information-in-the-new-zealand-economy-2009.pdf>

In EU, Using Open Data saves EU Countries saves **114 Billion** Euros/year.

<https://joinup.ec.europa.eu/news/contribution-open-source-europes-economy-450-billion-year>

Early Efforts: Pacific Island Countries



2004

Mapserver deployments across 14 Pacific Island Countries.

EU/EDF Pacific Islands Vulnerability Project.

Status: Defunct



2007

Geonetwork deployed within SOPAC/SPC to catalog the Pacific Marine and Oceanographic products collected by internal surveyors and from external organizations.

Status: Active (widely used)

<http://geonetwork.sopac.org>

Current Implementations



Spatial Data Infrastructure Implementation



GeoNode is a web-based application and platform for developing geospatial information systems (GIS) and for deploying spatial data infrastructures (SDI).

It is designed to be extended and modified, and can be integrated into existing platforms.

2nd Global Deployment PCRAFI after Haitidata.org

Builds upon industry standard open source components used within SPC:

Geonetwork, GeoServer
PostGIS, GeoTools, GeoGIG



Regional: PacGeo



PacGeo Layers Maps Documents People Groups Help Search Sign in



An open access geospatial data repository for the Pacific Region providing premier geophysical, geodetic, and marine spatial data sets.

Developed through collaboration between the GeoScience Division of Secretariat of the Pacific Community (GSD/SPC), University of Sydney, Geoscience Australia (GA), and GRID-Arendal.



835 Layers

Click to search for geospatial data published by other users, organizations and public sources. Download data in standard formats.

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927 Documents

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Spatial Maps

Data is available for browsing, aggregating and styling to generate maps which can be shared publicly or restricted to specific users only.

[Explore maps »](#)



2 Users

PacGeo allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff, along with related documents and videos.

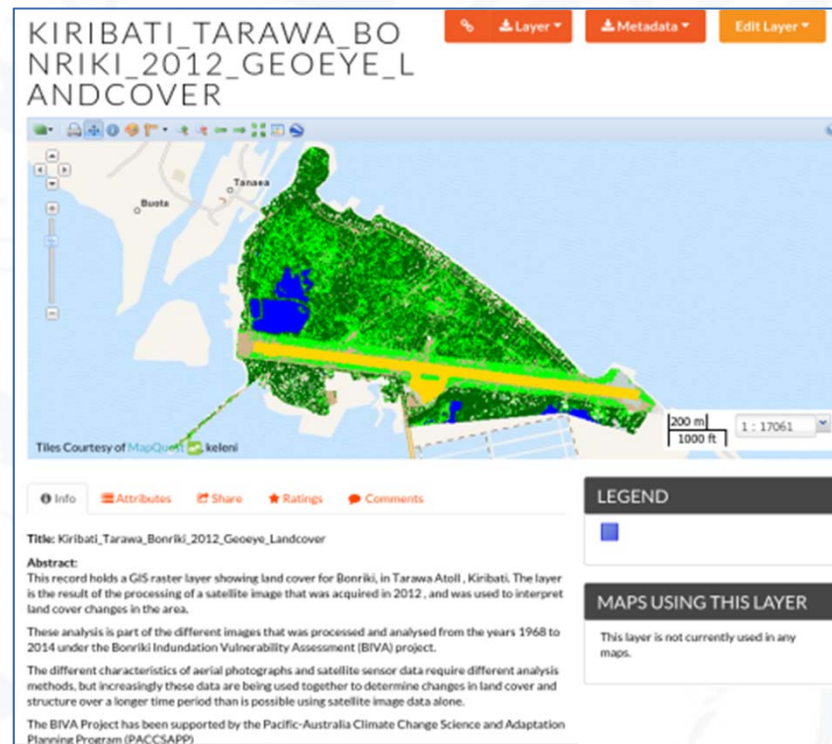
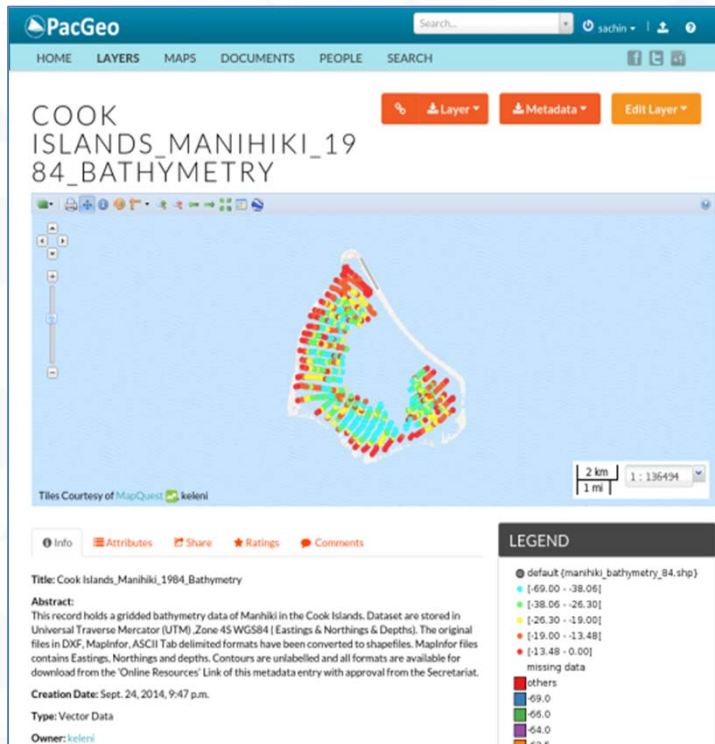
[See users »](#)

Pacific Island Countries



SPC

PacGeo: Data



Pacific Bathymetry Maps, Datasets, Reports, Historical Aerial Photographs, Deep Sea Minerals Sample Information, South Pacific Sea Level and Climate, Monitoring Project Information, Pacific Maritime Boundary Information, EEZ, Scientific Cruise Reports and Data, Coastal & Terrestrial Geological Maps, Satellite Images, Seismic Shot-points, Historical scanned maps and Charts (magnetic anomalies, maps from gravity & electromagnetic surveys)

PacGeo: User Generated Content



PacGeo Search... sachin

HOME LAYERS MAPS DOCUMENTS PEOPLE SEARCH

CYCLONE ORAMA NISHA - SIGNIFICANT WAVE HEIGHT

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Applied Geoscience and Technology Division (SOPAC)

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Maps / Suva Tsunami Zone and Evacuation

[View Info](#)

Data Legend

- Map Layers
 - Suva Tsunami Evacuation Zones
 - Suva Tsunami Zone
- Background
 - Google Satellite
 - bluemarble
 - No background
 - OpenStreetMap

Data CC-BY-SA by [OpenStreetMap](#), [admin](#)

PacGeo: Real-time Data Display

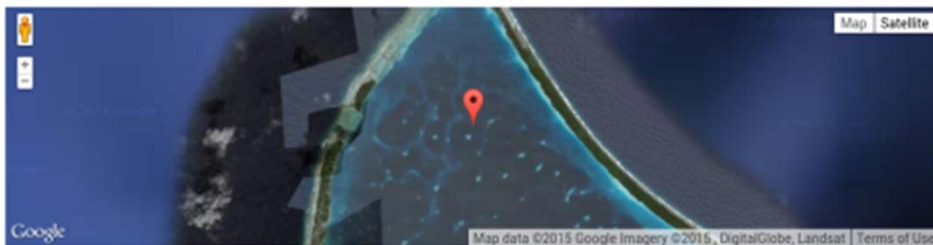


Real-Time Multi-Buoy Data Display

Fiji Islands Cook Islands

Latest Measurements

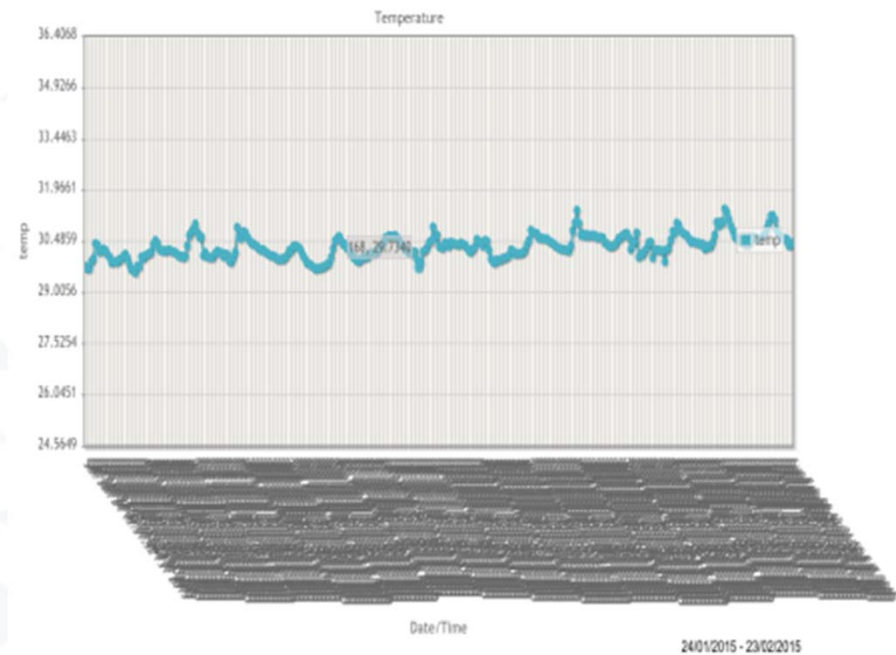
Time 00:33:08	Latitude -10.4017	Chlorophyll 0.2783	Air Pressure Pa=1006.7H	Average Wind Speed Sm=2.8M
Date 25/11/2014	Temperature 30.1829	Turbidity (NTU) 0.1769	Surface Temperature 26.55	Wind Direction Dr=201D
Sequence # 2115	Salinity 35.7297	Air Temperature Ta=28.6C	Underwater Temperature 28.50	
Longitude -161.0048	Oxygen 9.408503	Total Records 2405		



Time Series Chart

Temperature

Recent
 Past 3 days
 Past 1 Week
 Past Foright
 Past Month
 Past 3 Months
 Past 6 Months
 Past Year
 Complete



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<http://ict.sopac.org/buoy>

Regional: Pacific Risk Information



PCRAFI Layers Maps Documents People Groups Partners About Type your search here... Sign In

PCRAFI

PACIFIC CATASTROPHE RISK ASSESSMENT & FINANCING INITIATIVE

Pacific Catastrophe Risk Assessment and Financing Initiative

[More Information](#)

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65 Users
Pacific Risk Information System allows registered users to easily upload geospatial data in several formats including shapefile and GeoTIFF.
[See users >](#)

Thematic

- Exposure
- Hazard
- Bathymetry
- Landuse
- Soil
- Topography
- Loss
- Imagery
Satellite, Aerial

Pacific Island Countries

- Cook Islands
- Fiji Islands
- Federated States of Micronesia
- Kiribati
- Marshall Islands
- Nauru
- Palau
- Papua New Guinea
- Solomon Islands
- Tokelau
- Tonga
- Tuvalu
- Samoa
- Timor-Leste
- Vanuatu

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English

Regional: Marine Minerals Database



Regional Marine Minerals Data System Layers Maps Documents People Groups About sachin

Regional Marine Minerals Database

Regional Marine Minerals Database (RMMD) for the Pacific, is an initiative by the SPC/EU Deep Sea Minerals project to collate and store relevant Pacific deep sea minerals historical data, maps and reports in a secure repository. The system was established as an effort to respond effectively to countries' requests for DSM data and information, and to expose said data in an easily accessible and usable format.

[More Information](#)

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1 User

RMMD allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff.

[See users »](#)

Pacific Island Countries

 Cook Islands	 Fiji Islands	 Federated States of Micronesia	 Kiribati	 Marshall Islands	 Nauru
 Palau	 Papua New Guinea	 Solomon Islands	 Tokelau	 Tonga	 Tuvalu
 Samoa	 Timor-Leste	 Vanuatu			

Regional: Cloud Deployed



- Currently Hosted in AWS Sydney Data Centre
- Redundancy, backup and disaster recovery is automated
- Counters sub-optimal hosting bandwidth in SPC
- Easier to deploy multiple instances
- Significantly lower total cost of ownership in the long-term
- Allows remote management, promotes data ownership



Regional: SPREP ESIS



GeoNode Layers Maps Documents People Groups Search Sign in

ESIS

A geospatial data repository for the Secretariat of the Pacific Regional Environment Programme (SPREP)

SPREP's ESIS is an open-source Geospatial Data Repository for the Pacific Region providing spatial data for environmental planning and governance. This repository has been developed with technical partners Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the GeoScience Division of Secretariat of the Pacific Community (SPC-GSD), and project partners Agence des Aires Marines Protégées (AAMP) and the European Union (EU). This portal is based upon Geonode 2.4.



39 Layers

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9 Maps

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6 Users


ESIS allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff, along with related documents and videos.

[See users »](#)

Country: SolGeo



SolGeo Layers Maps Documents People Groups connie



SolGeo is the Spatial Data Infrastructure (SDI) platform for the government of Solomon Islands implemented on top of an enterprise-level [Geospatial Data Services](#) platform that enables the ministries to centrally collate, manage, expose and analyse its spatial and related data holdings. This *whole-of-government* geospatial data services is essential to monitor and respond to natural resource use and infrastructure challenges within Solomon Islands, as it will enable sound decision making within a geospatial context.

[More Information](#)



761 Layers

Click to search for geospatial data published by other users, ministries, organizations and public sources. Download data in standard formats.

[Add layers »](#)



9 Maps

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[Create maps »](#)



14 Users

SolGeo allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff among others.

[See users »](#)



24 Ministries

SolGeo enables SIG ministries and groups to manage data access and users in an independent and secure manner.

[See Ministries »](#)



Country: SolGeo



SolGeo Layers Maps Documents People Groups solgeo

SolGeo

SolGeo is the Spatial Data Infrastructure (SDI) platform for the government of Solomon Islands implemented on top of an enterprise-level Geospatial Data Services platform that enables the ministries to centrally collate, manage, expose and analyse it's spatial and related data holdings. This *whole-of-government* geospatial data services is essential to monitor and respond to natural resource use and infrastructure challenges within Solomon Islands, as it will enable sound decision making within a geospatial context.



About PacGeo/GeoNode

PacGeo is a geospatial content management system, a platform for the management and publication of geospatial data. It brings together mature and stable open-source software projects under a consistent and easy-to-use interface allowing non-specialized users to share data and create interactive maps.

Data management tools built into PacGeo allow for integrated creation of data, metadata, and map visualizations. Each dataset in the system can be shared publicly or restricted to allow access to only specific users. Social features like user profiles and commenting and rating systems allow for the development of communities around each platform to facilitate the use, management, and quality control of the data the PacGeo instance contains.

It is also designed to be a flexible platform that software developers can extend, modify or integrate against to meet requirements in their own applications.



[SolGeo User, Administrator and Developer Workshop and Reference Documentation](#)

[Training Workshop](#)

Implemented with technical support from:



SPC
Secretariat
of the Pacific
Community


Geoscience Division
Secretariat of the Pacific Community

Country: FijiGeo



 FijiGeo

[Layers](#) [Maps](#) [Documents](#) [People](#) [Groups](#)

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 mala



Fiji Geospatial Data Services and Repository

FijiGeo is the direct outcome of a decision made by Fiji Geospatial Information Management Council in June, 2014 for the Geospatial Information Management Division, under the Ministry of Lands and Mineral Resources, to develop a geospatial data content management system to manage the different spatial and related datasets that is being administered by the different ministries in Fiji, within a single, consolidated geospatial platform across Fiji government's local network.

[More Information](#)



651 Layers

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1 Map

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[Create maps »](#)



3 Users

FijiGeo allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff, along with documents.

[See users »](#)



14 Ministries

SolGeo enables SIG ministries and groups to manage access and users in an independent and secure manner.

[See Ministries »](#)



Country: Cook Islands



Kia Orana and Welcome

The EMCI GeoNode system is as our answer to online mapping and document catalogue to assist emergency response teams make better decisions in the event of a national emergency.

Within this catalogue system, you will discover GIS maps and documents with metadata to provide information about the maps and documents. The metadata aspect will assist you in determining the origin, rights to use under license and amongst other information, validity of information being hosted. Although this system is focused on primarily for Emergency Response, however there are other information available to support decision making. We will endeavor to improve your experience throughout this system as we progress with further development.

Meitaki maata to our [partners](#) and contributors for their continuous support.

Feel free to [contact us](#) for any queries regarding EMCI GeoNode system.
Need help? [Getting Started](#)



33 Layers

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[Explore Layers »](#)



13 Maps

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[Create Maps »](#)



46 Users

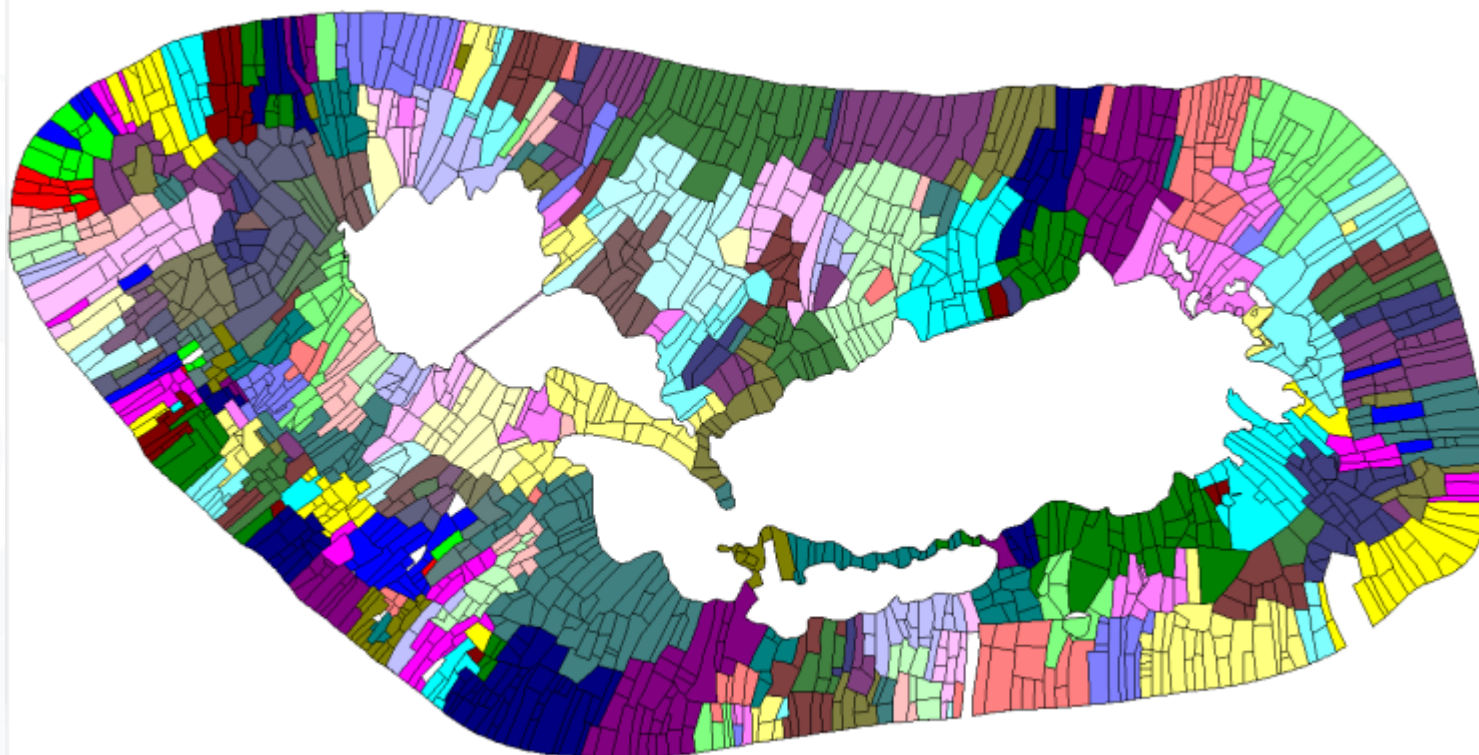
GeoNode allows registered users to easily upload geospatial data in several formats including shapefile and GeoTiff.

[Share Data »](#)

Featured Information

<http://geonode.emci.gov.ck>

Country: TuvLIS





Kiribati Health Portal v0.1 Browse ▾ Search ... Welcome sachin ▾







Kiribati Health Portal

[Home](#) [Outbreaks](#) [Household Surveys](#) [Marine Water Monitoring](#) [Public Water Monitoring](#) [Maps](#) [Reports](#) [Villages](#) [Communities](#) [Sites](#)

Welcome to Kiribati Health Portal

Kiribati Health Portal is a secure online database system which enables Ministry of Kiribati personnel to populate, collate and collaborate on outbreaks, household and utilities surveys, in addition to other related datasets, within a geospatial context.

[More Information](#)

 Outbreaks 2021	 Household Surveys 2	 Marine Water Monitoring 1
 Public Water Monitoring 1	 Geospatial Maps 0	 Documents & Reports 1

Disclaimer

Kiribati Health Portal database system may contain other proprietary notices and copyright information, the terms of which must be observed and followed. Information on this Web site may contain technical inaccuracies or typographical errors. Information may be changed or updated without notice.

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Cyclone Pam Spatial Data Resources





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 Community

Cyclone Pam Spatial Data Resources

Severe Tropical Cyclone Pam is regarded as the worst natural disaster in the history of Vanuatu. United Nations reports that 16 people are known to have lost their lives in the archipelago nation, with many more fatalities reported but unconfirmed. The storm's impacts were also felt, albeit to a lesser extent, to other islands in the South Pacific, most notably the Solomon Islands, Tuvalu, and New Zealand. Pam is the second most intense storm of the South Pacific Ocean according to pressure, after Zoe of 2002; Pam is also the third most intense storm in the Southern Hemisphere by the same metric, only after Zoe of 2002 and Gaffo in 2004. In addition, Pam had the highest 10-minute sustained wind speed of any South Pacific tropical cyclone; it is tied with Cyclone Orson and Cyclone Monica for having the strongest winds of any cyclone in the Southern Hemisphere.



This page collates all spatial data resources for affected areas available within SPC to assist stakeholders in humanitarian efforts. The page will be continuously updated for the next few days.


 DigitalGlobe First Look Imagery

Subscribe to Pacific Disaster Net mailing list @ <http://lists.spc.int/mailman/listinfo/pdn> for latest updates on media releases and situation reports.

Impact Maps

Vanuatu Risk Map
[Latest](#)

SPC: Building Damage Classification for Port Vila, 30/03/15 (in progress)
[Latest](#)

Crisis Map
[Latest](#)

SPC: TC Pam Waves Summary (Preliminary) [Latest](#)

UNITAR: Potentially Damaged Areas and Zones

UNOSAT: Port Vila Impact Map


PRISM: Population by Building Material, Drinking Water and Sanitation Charts

Vanuatu Sanitation (Water Sealed, Flush, Pit, VIP)

Proportion Of Households With No Toilet Facility

Shefa Water Points (ownership, type, functionality) prior to Tropical Cyclone Pam

Water Points (Community, Private and Unknown)



Data Layers

Title	Type
Vanuatu Coastline	Exposure
Vanuatu Point Building Exposure Modelled	Exposure
Vanuatu Point Building Exposure Verified	Exposure
Vanuatu Bridges	Exposure
Vanuatu Building Footprints	Exposure
Vanuatu Building	Exposure
Vanuatu Landuse Landcover	Exposure

Situation Reports

Vanuatu Tropical Cyclone Pam :
 Situation Report # 6 ; 25 March 2015
[\[WFP\] Latest](#)

Vanuatu : Tropical Cyclone Pam ;
 Situation Report No 10 [Vanuatu
 NDMO] [Latest](#)

Vanuatu : Tropical Cyclone Pam ;
 situation report no 10 (as of 24 March
 2015) - UNOCHA

Pacific : Tropical Cyclone Pam (TC
 Pam) ; external situation report no 3, 24
 March 2015 [WHO]

Vanuatu - Cyclone Pam : ETC Situation
 Report 03 ; reporting period 20/03/2015
 to 24/03/2015. [Emergency
 Telecommunications Cluster]

Cyclone Pam humanitarian situation
 report 9 ; 23-24 March 2015 [UNICEF]

Humanity Road - Vanuatu : Social
 Media 3W Report # 4 ; March 25, 2015
 (local)

Vanuatu : Tropical Cyclone Pam ;
 situation report no 8 (as of 22 March
 2015) - UNOCHA

Tuvalu : Tropical Cyclone Pam ;
 Situation Report no. 1 (as of 22 March
 2015)

Vanuatu : Tropical Cyclone Pam ;
 situation report no 9 [Vanuatu NDMO]

Vanuatu : Tropical Cyclone Pam ;
 situation report no 8 [Vanuatu NDMO]

Vanuatu : Tropical Cyclone Pam ;




Evolves with technology: Point Cloud




Vanuatu Takara 2

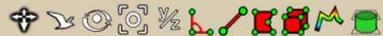
Point cloud courtesy of
Geoscience Division, Secretariat of the Pacific Community



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Materials	RGB	
quality	Squares	
Clip Mode	Highlight Inside	
skybox	<input checked="" type="checkbox"/>	
stats	<input type="checkbox"/>	
BoundingBox	<input type="checkbox"/>	
Close Controls		



<http://gsd.spc.int/pointcloud>



Pacific SDI Working Group



Australian Government
Geoscience Australia



THE UNIVERSITY OF
SYDNEY



Pacific
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du Pacifique**



Free and Open Source System



PacGeo is open source – the software is free and if it proves successful PICT’s can easily and cheaply adopt similar domestic approaches, fully OGC-complaint

Low Total Cost of Ownership, No Licensing Fees, No Royalties, No Upgrade Costs, No Vendor Lock-in.

PacGeo is compatible with our existing efforts and many spatial data systems all over the world

Comprehensive and flexible integrated security built in (Group/Individual)

Source code is freely available - <https://github.com/sopac/pacgeo>

No departmental/organizational IT and programming skill-sets required to use

FOSS adoption recommended by all major SPC developmental partners and international partners for “ICT4Dev” in developing countries.



2016 Priorities for PacGeo



- Incorporate attribution for IHO S-121 (Marine Boundaries and Limits) for Pacific Maritime Boundaries and Regional Marine Minerals data repository (w/GeoScience Australia)
- Expand PacGeo for PRNI (Pacific Regional Navigation Initiative) and related Maritime Cadastre (w/ IHO-UK, LINZ etc)
- Expand and formalise Pacific SDI Working Group
- Seek external funding for PacGeo Evolution and Capacity Building for PIC



Thank you.



<http://picgisrs.appspot.com>

Links

www.pacgeo.org
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geonetwork.sopac.org

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