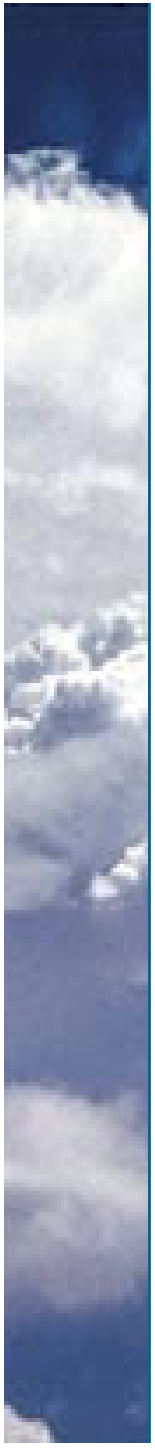


CREWS

Climate Risk and Early Warning Systems International Initiative

CREWS

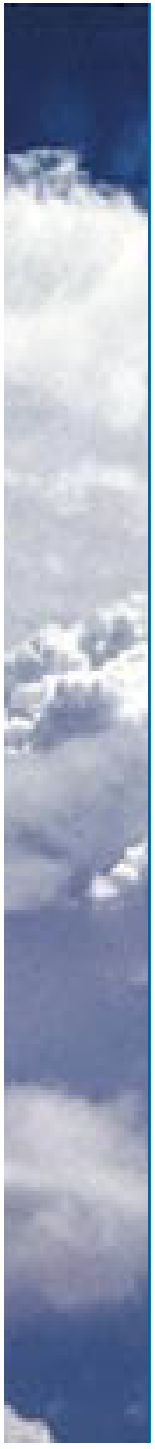
- Climate Risk and Early Warning Systems (CREWS) is an international initiative which aims to
  - significantly increase the capacity for seamless multi-hazard early warning system to generate and communicate effective impact-based early warnings, and risk information for hazardous hydro-meteorological and climate events.
- Its purpose is to protect lives, livelihoods, and property in Least Developed Countries (LDC) and Small Island Developing States (SIDS).

CREWS Implementation

- The CREWS coalition is led by France, with support from Australia, Germany, Luxembourg, the Netherlands, Japan and Canada.
- It is being implemented by
  - the World Meteorological Organization (WMO),
  - the UN Office for Disaster Risk Reduction (UNISDR),
  - the World Bank, and
  - the Global Facility for Disaster Reduction and Recovery (GFDRR).

CREWS Projects

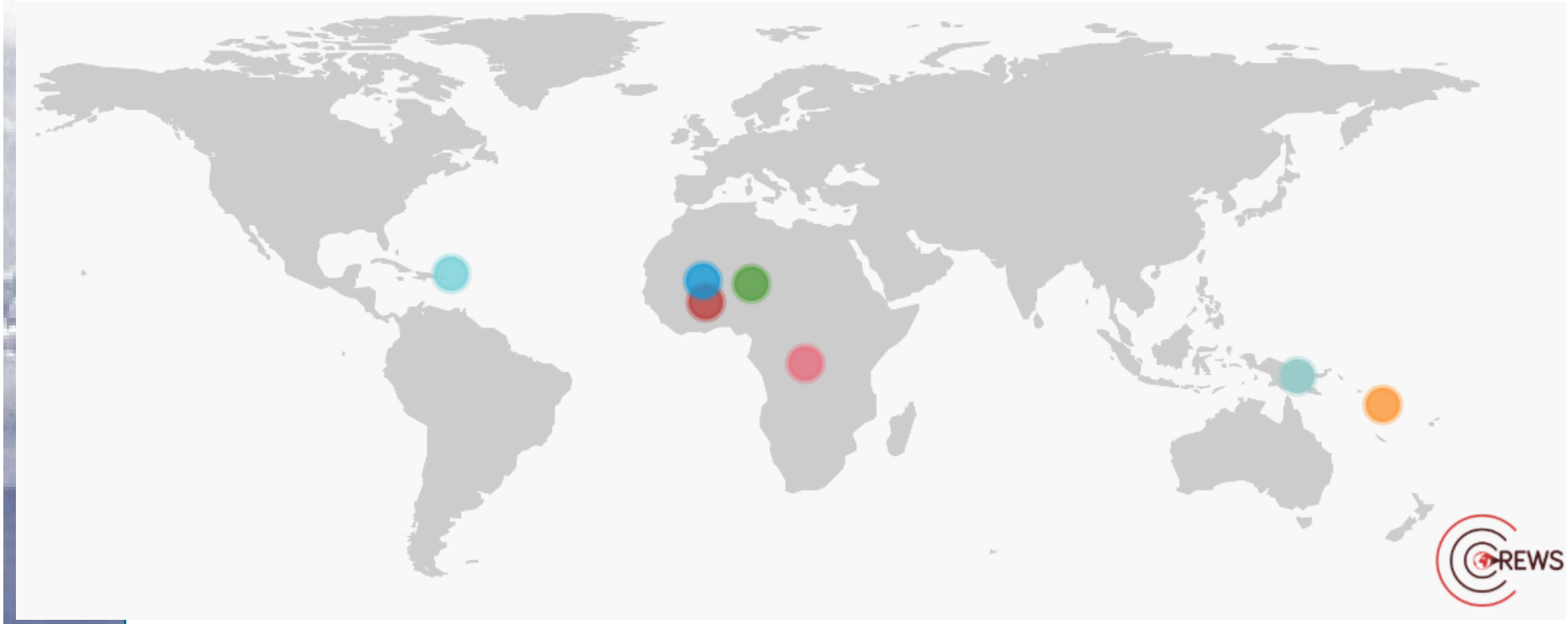
- Projects are underway in
  - the Caribbean,
  - the Pacific,
  - West Africa,
  - Burkina Faso, Congo, Mali, Niger, and
  - Papua New Guinea
- aiming to enhance their hydro-meteorological warning services combined with improving their emergency plans and operations.



CREWS

Global, Regional and National Projects

CREWS Projects



Projects are underway in the Caribbean, the Pacific, West Africa, and Papua New Guinea

Caribbean: Lessons Learnt on Early Warning Systems Following the 2017 Hurricane Season

In the Caribbean, CREWS aims to assess the effectiveness of Caribbean early warning systems by identifying critical gaps during the 2017 hurricane season in the areas of meteorology and hydrology, disaster management, and gender, to reassess and validate priority investments for CREWS and other initiatives.

Caribbean: Lessons Learnt on Early Warning Systems During the 2017 Hurricane Season

Review "*Lessons learnt on Early Warning Systems during the 2017 Caribbean Hurricane Season*" was presented during the Regional Platform for Disaster Risk Reduction in the Americas, Cartagena de Indias, Colombia from 20-22 June 2018.

Key findings to date that need to be addressed with some urgency include greater investment in national meteorological services to strengthen their physical and communications infrastructure, data collection networks, human and technical capacity as well as interactions with the public.

The CREWS Steering Committee has approved a USD 5.5 Million project for the Caribbean Region. The project, due to start in the third quarter of 2018 will pick up the recommendations from this review of EWS in the Caribbean.

Pacific: Strengthening Hydro-Meteorological and Early Warning Services

In the Pacific, CREWS aims to strengthen the ability of the Regional Specialised Meteorological Centre Nadi, Fiji to support other Pacific Islands; and enhance the capacity of the national meteorological agencies of Pacific Island Countries and Territories to provide impact-based forecasts of extreme weather events (such as floods, droughts, cyclones and storms).

West Africa Region: Seamless operational forecast systems and technical assistance for capacity building

In the West Africa Region, CREWS aims to strengthen regional entities to engage with national hydro-meteorological agencies in the region to improve risk information and early warning services at national level.

Burkina Faso: Strengthening National Capacities for Early Warning System Service Delivery

In Burkina Faso, CREWS aims to improve hydro-meteorological services for early warning for flood-related risks and risk information for agriculture, food security and anticipation of severe weather impacts.

Democratic Republic of Congo: Strengthening HydroMeteorological and Early Warning Services

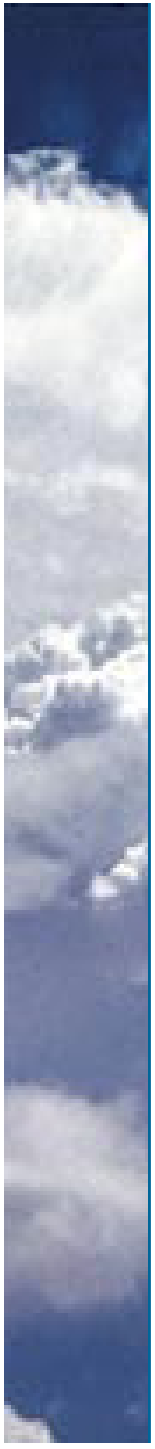
In the Democratic Republic of Congo, CREWS aims to improve weather forecasts for dissemination through different media; strengthen agro-meteorological information services; and provide extreme-weather warnings and services to urban flood-prone municipalities, aviation and fluvial navigation services.

Mali: Hydrological and Meteorological Services Modernization Project

In Mali, CREWS aims to enhance hydro-meteorological observation, monitoring and impact forecasting services; improve the food security early warning system; establish flood early warning services; and enhance civil protection response capacities.

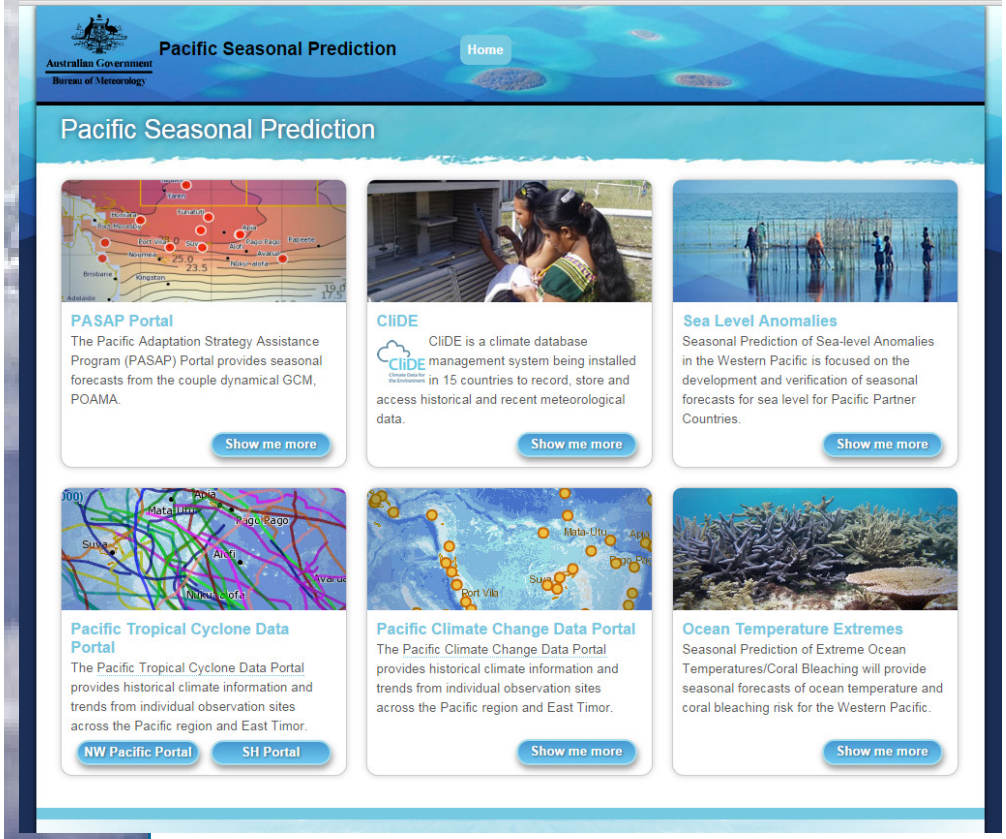
Papua New Guinea: Weather and Climate Early Warning System

In Papua New Guinea, CREWS aims to build the capacity of the national meteorological agency and strengthen its cooperation with key sectoral ministries, departments and other stakeholders for agriculture, disaster management, energy and infrastructure.



International Climate Change Adaptation Initiative

The Pacific Climate Portals



A range of web-based information tools has been developed to assist NMHSs of 15 island countries in the Western Pacific with climate change adaptation:

- Pacific climate change data portal
- Seasonal climate prediction portal
- Pacific tropical cyclone data portal
- Sea level anomalies & ocean temperature extremes

Data rescue

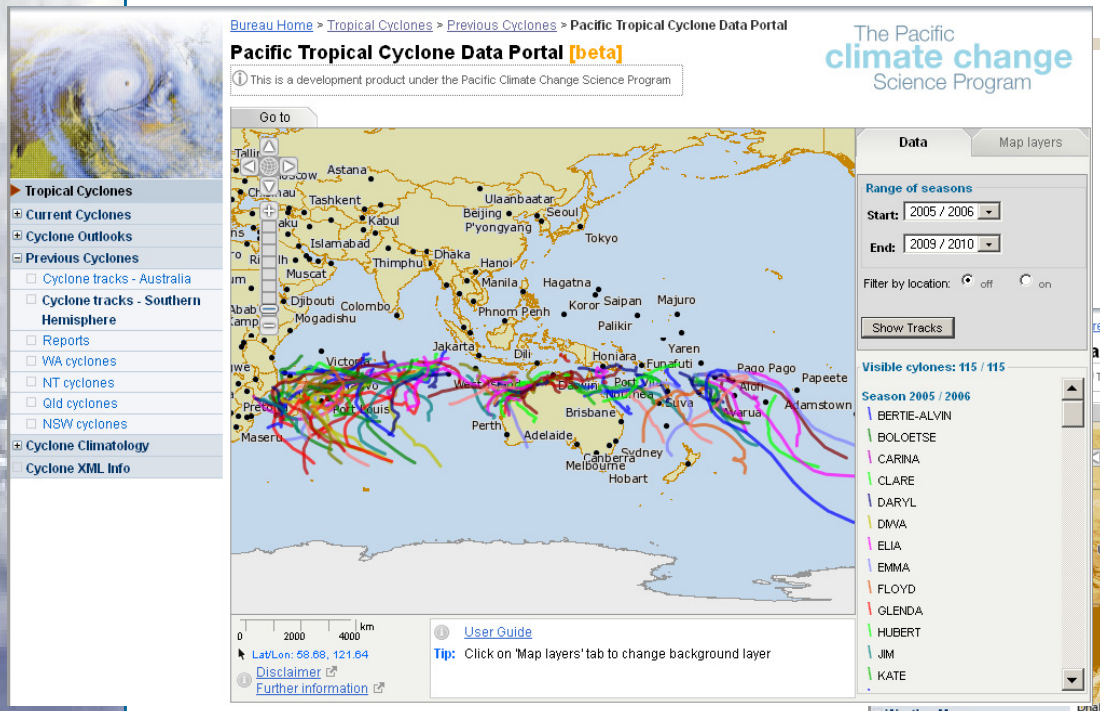
500 Year Archive Boxes

Shipment by Sea

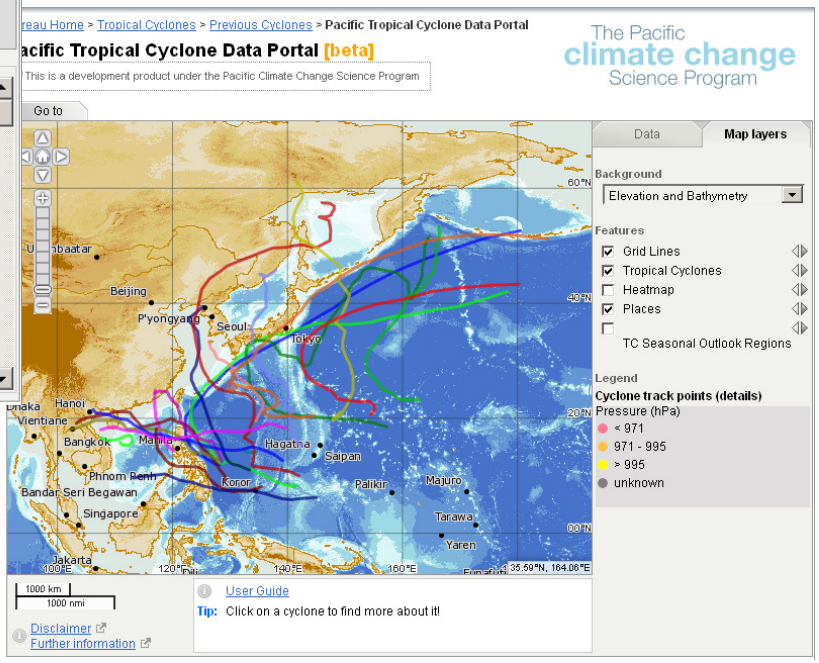
Data entry

CliDE: Climate Data for the Environment

Tropical Cyclone Data Portal

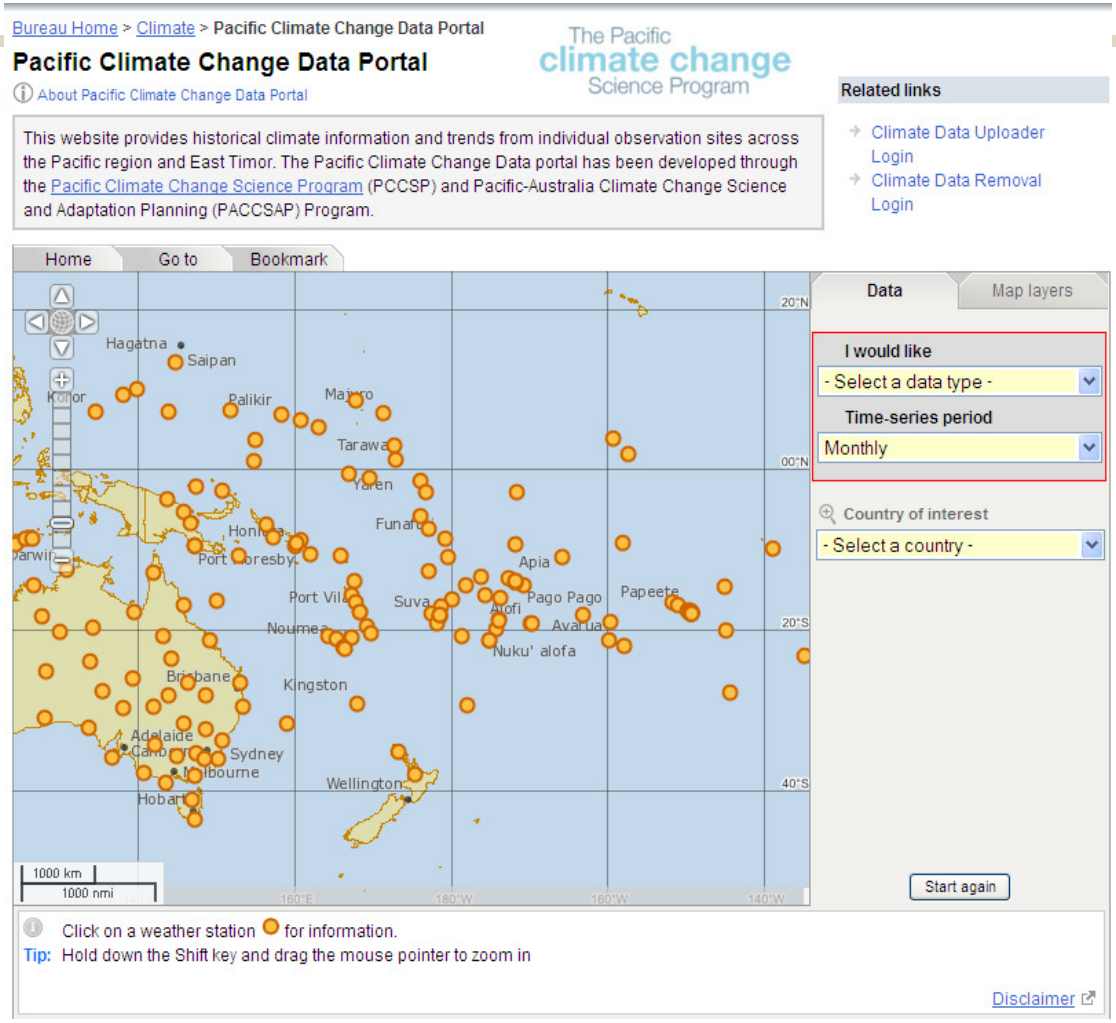


Southern Hemisphere



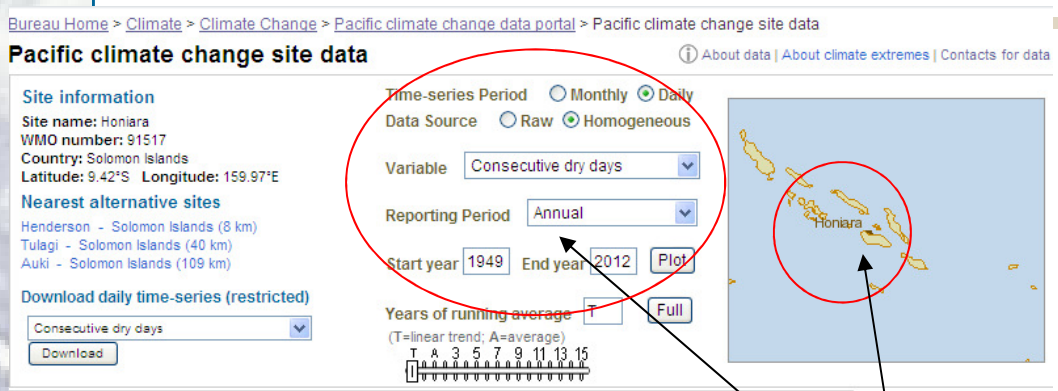
Western North Pacific

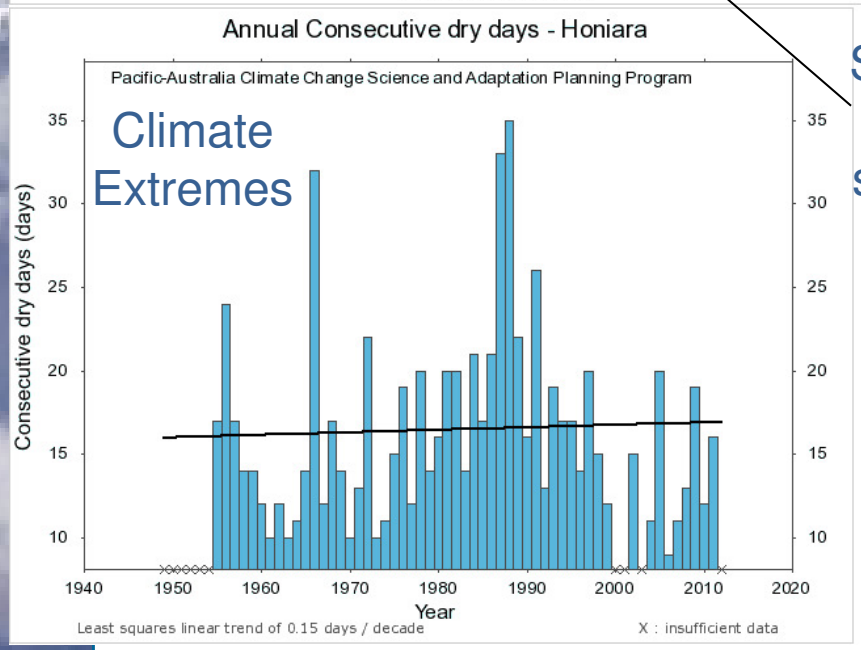
Pacific Climate Change Data Portal



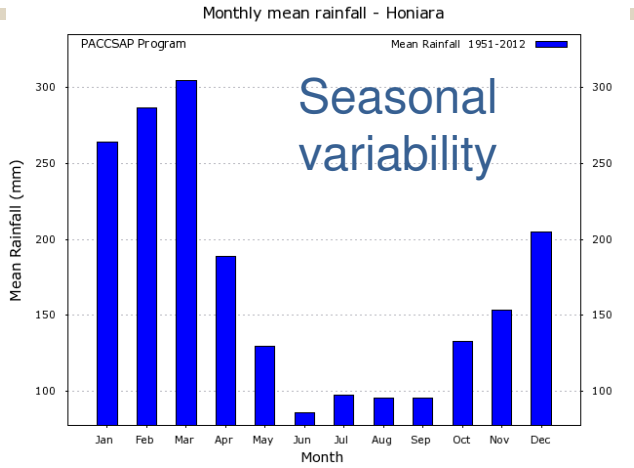
Currently, 92 station records for 23 countries and territories

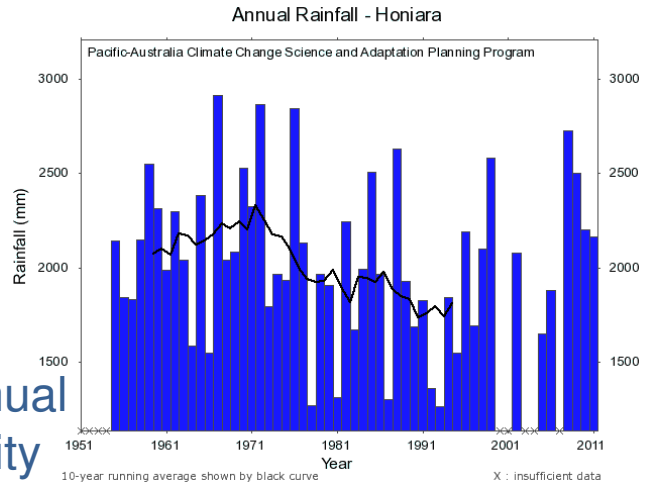
Pacific Climate Change Data Portal





Station & data selection



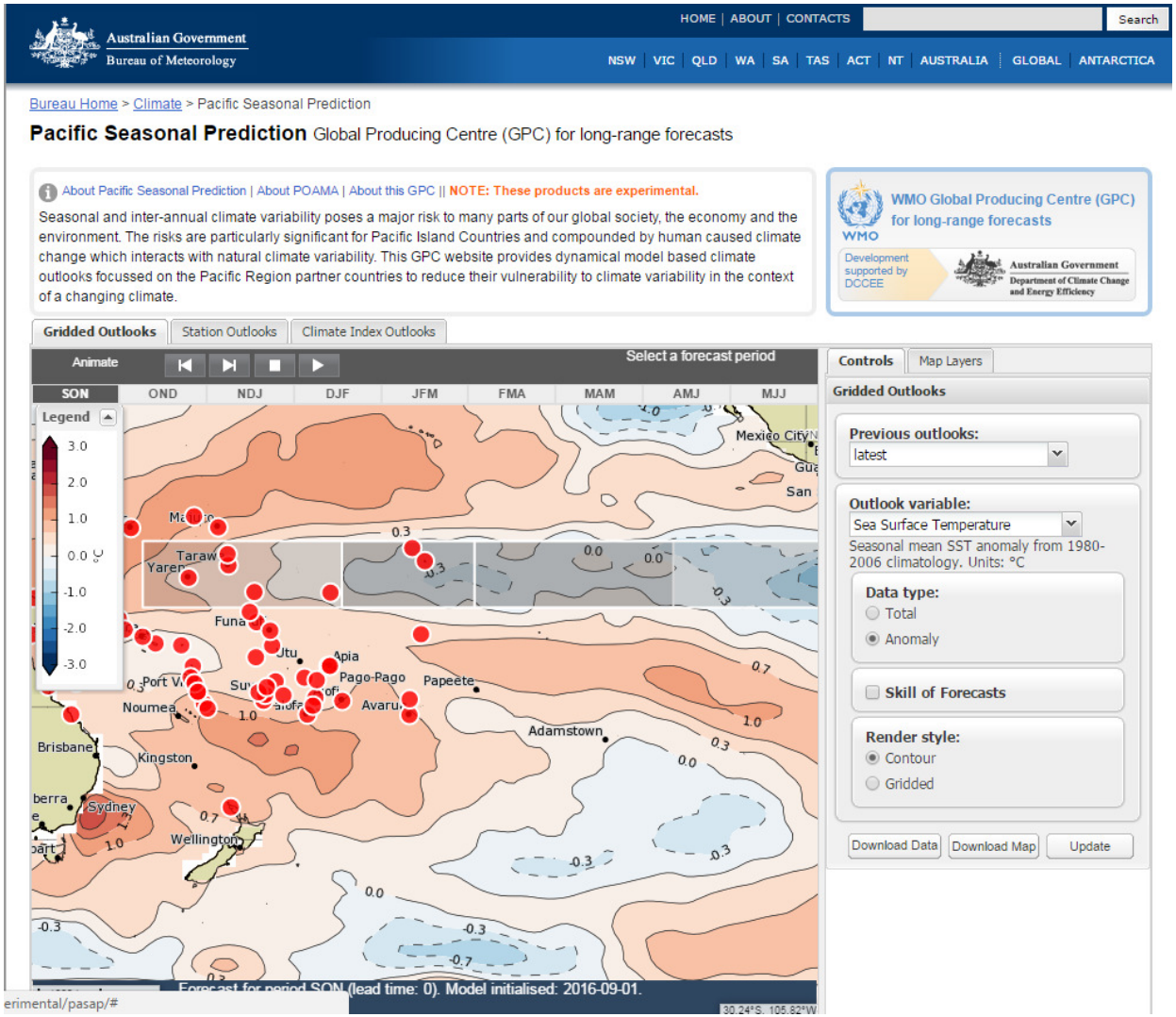


Inter annual variability and trends

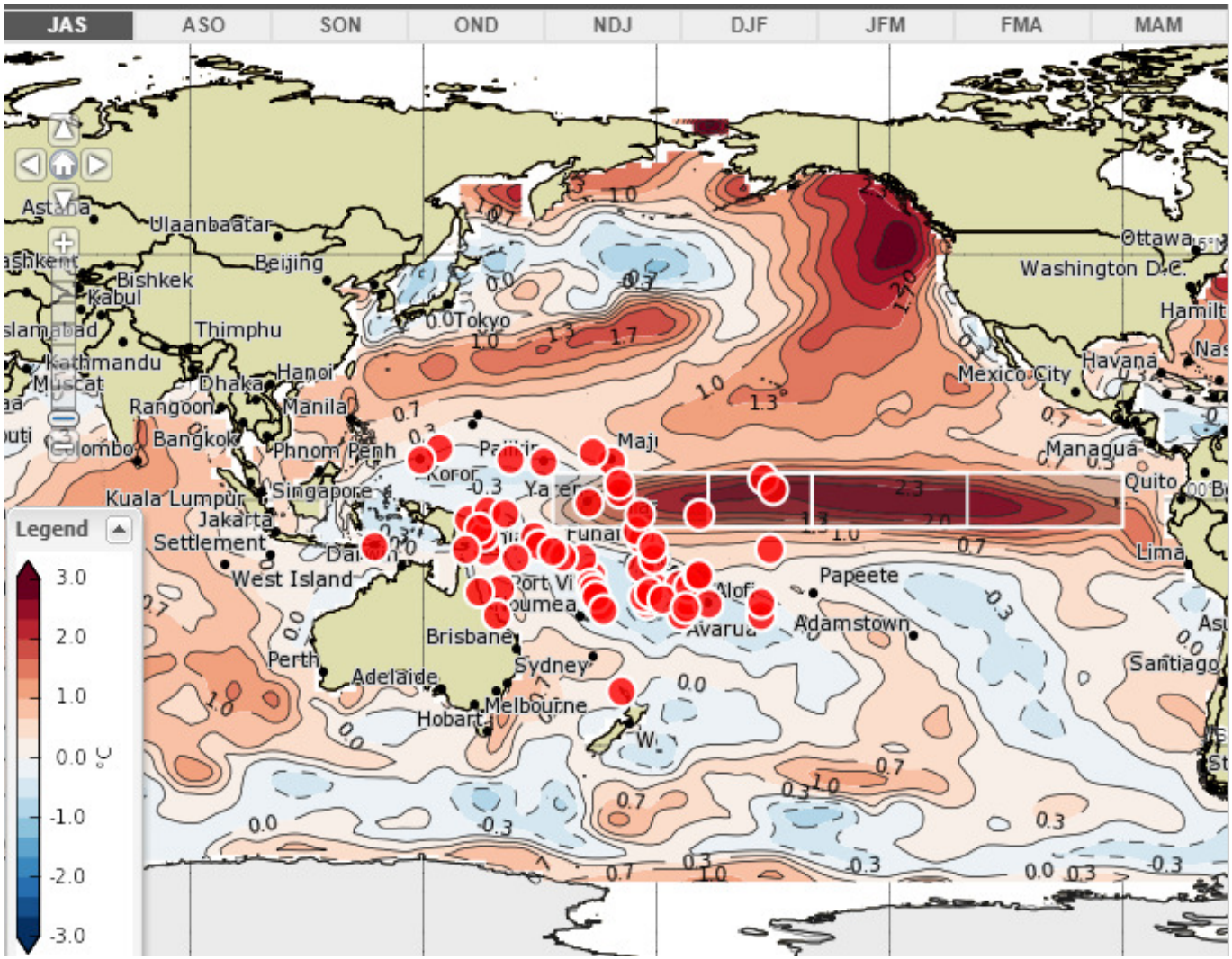
WMO GPC LRF seasonal climate outlook

WMO Global Producing Centre (GPC) for long-range forecasts (LRF), Melbourne, Australia

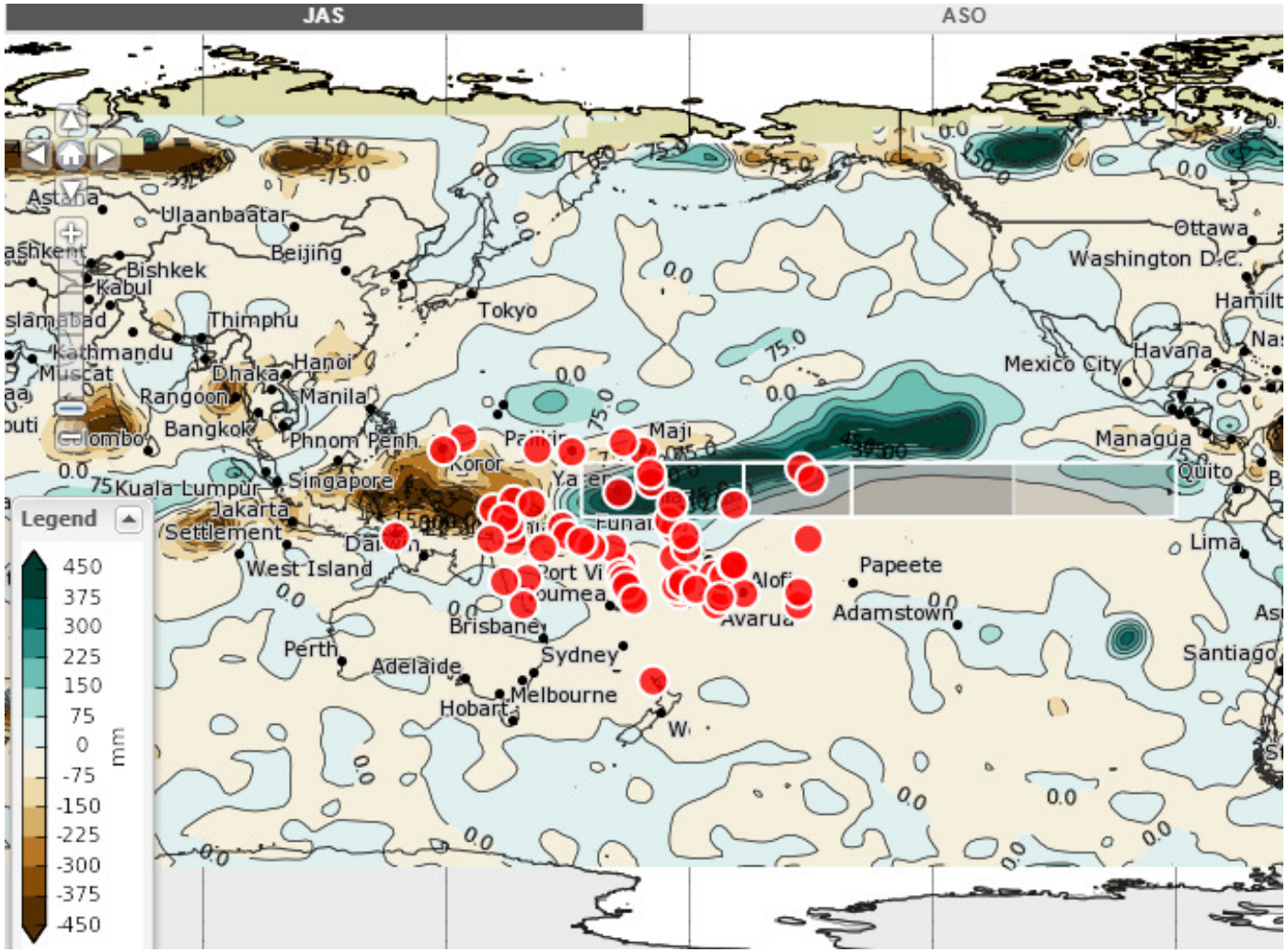
Developed as part of the ICCAI, Pacific Adaptation Strategy Assistance Program (PASAP)



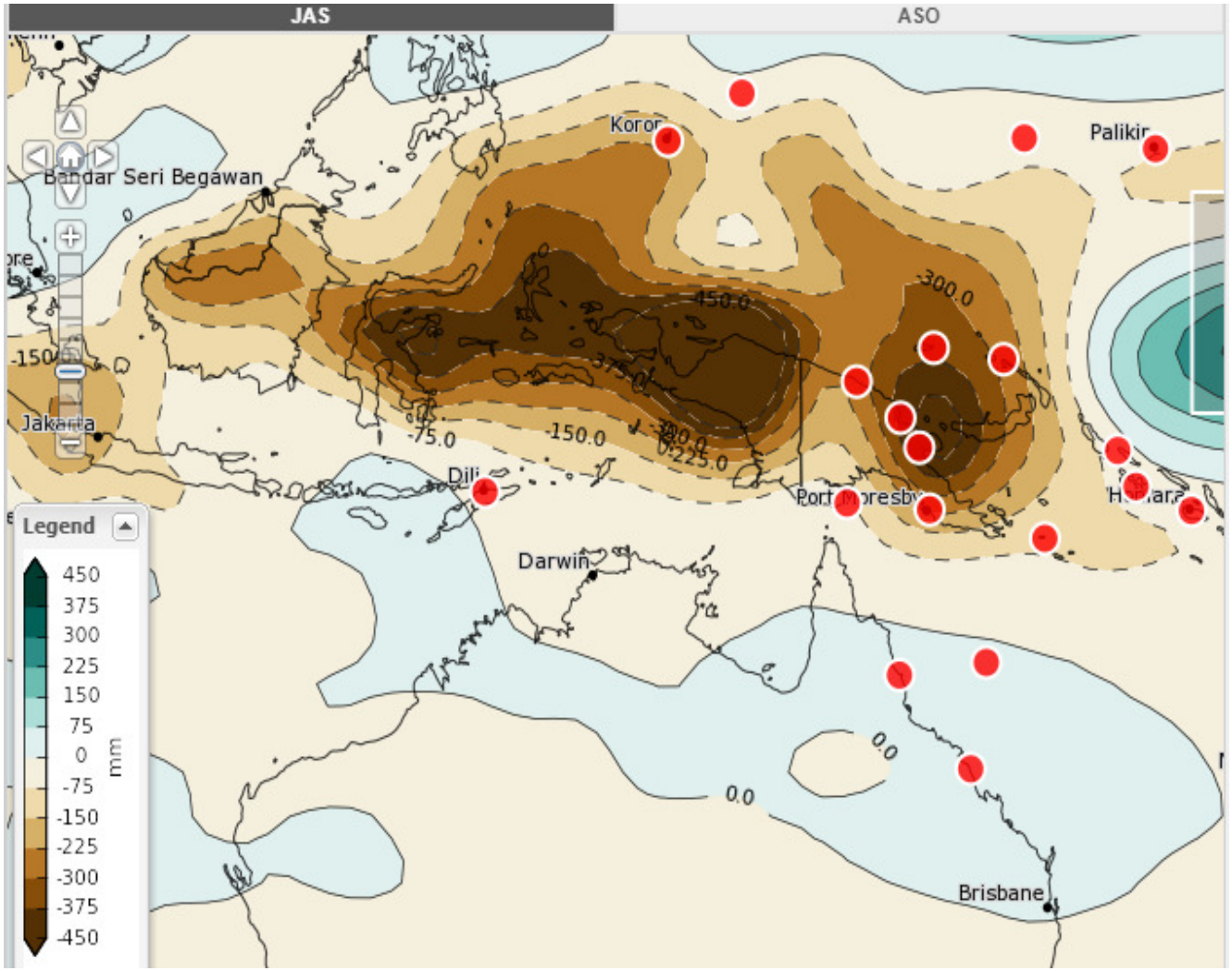
El Niño 2015 – JAS SSTs outlook



Accumulated rainfall JAS 2015 outlook



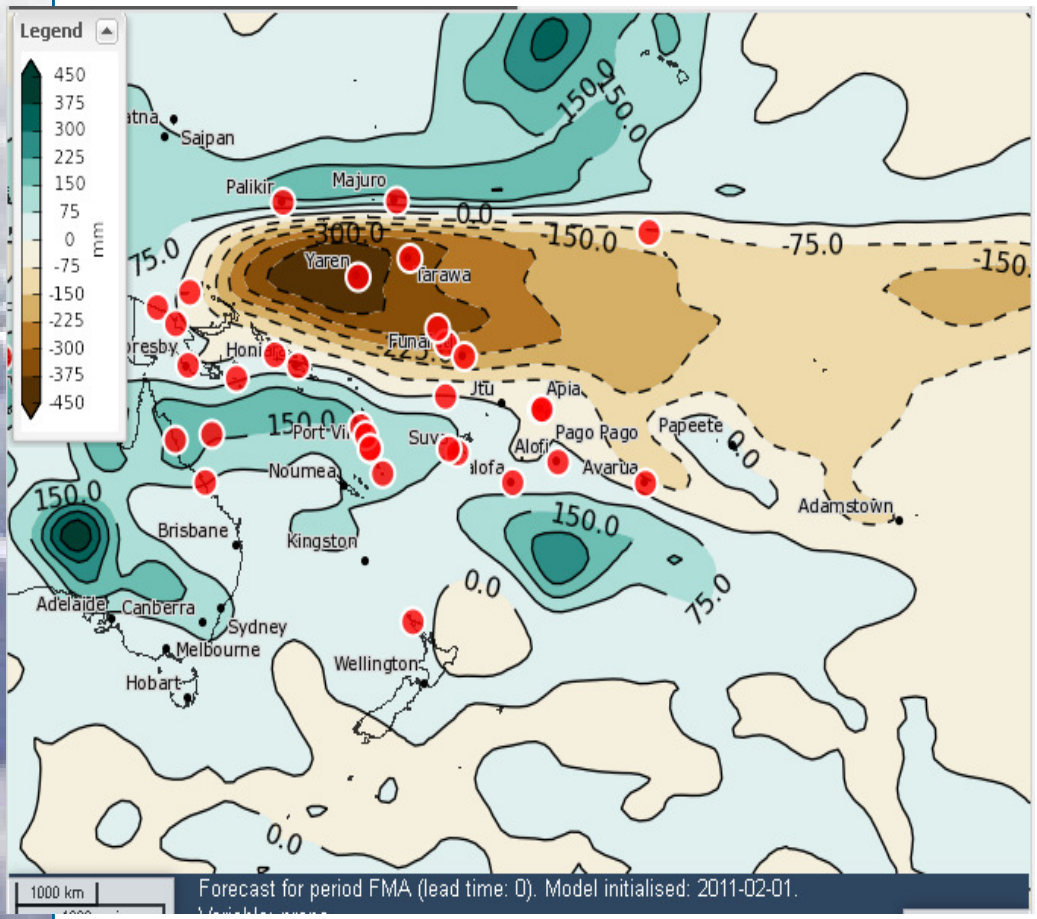
Accumulated rainfall JAS 2015 outlook



Droughts in the Pacific

- In 2011, a number of countries and territories in the region, including Samoa, Tokelau and Tonga were affected by La Niña-induced rainfall deficit; Tuvalu was particularly seriously impacted.
- On the 28 September 2011, the government of Tuvalu declared a state of emergency due to critically low water supplies.
- Households were rationed to about 40 litres of fresh-water a day as some parts of Tuvalu had just a two day supply of water left.
- The situation was critical and the governments of Australia, Japan, New Zealand and South Korea immediately began delivering fresh water supplies and portable desalination plants.

The Pacific Seasonal Climate Prediction Portal



Prediction of seasonal rainfall anomalies in the South Pacific region. The seasonal forecasts issued in February 2011 for three-month period FMA.

Seasonal climate forecast issued in February 2011 for the three-month period February-March-April (FMA) predicted that the rainfall deficit in the area of Tuvalu would continue, with the ensemble mean forecast quantity of seasonal rainfall about 225 mm below average.

Working with people

- Extensive training of the Pacific National Meteorological Services personnel during in-country visits
- Pacific Science Programs numerous workshops

Working for people

VISITING CLIMATOLOGIST: Australian High Commissioner, Dr Stephen Henningham, welcomes Professor Yuriy Kuleshov to Samoa.

Samoa Observer, 12 June 2013

"A top of Australian scientist is in Samoa to help the country tackle climate change. Professor Yuriy Kuleshov, from the Australian Bureau of Meteorology, is the leader of an international team of scientists developing seasonal climate prediction capability for the Pacific region.

"Climate change is one of the biggest problems faced by humanity," says Professor Kuleshov.

"Urgent adaptation measures to climate change are required to address issues of warming temperatures, rising sea levels and increasing frequency of climate extremes such as floods and droughts."

The tsunami devastated parts of Samoa's coastline on 29 September 2009, claimed 143 lives, ravaged the landscape and changed the way of life for hundreds of families.

Visiting communities of Lepa and Saleapaga villages in Samoa affected by 2009 tsunami.

Summary

- Climate hazards lead to significant losses of life and socioeconomic impacts; it is expected that frequency of climate extremes will increase under climate change
- CREWS aims to significantly increase the capacity for seamless multi-hazard early warning system to generate and communicate effective impact-based early warnings, and risk information for hazardous hydro-meteorological and climate events.
- Global, regional and national projects are underway including the Caribbean, the Pacific, West Africa, PNG
- CREWS is important international initiative aiming to help LDCs and SIDS with climate change adaptation