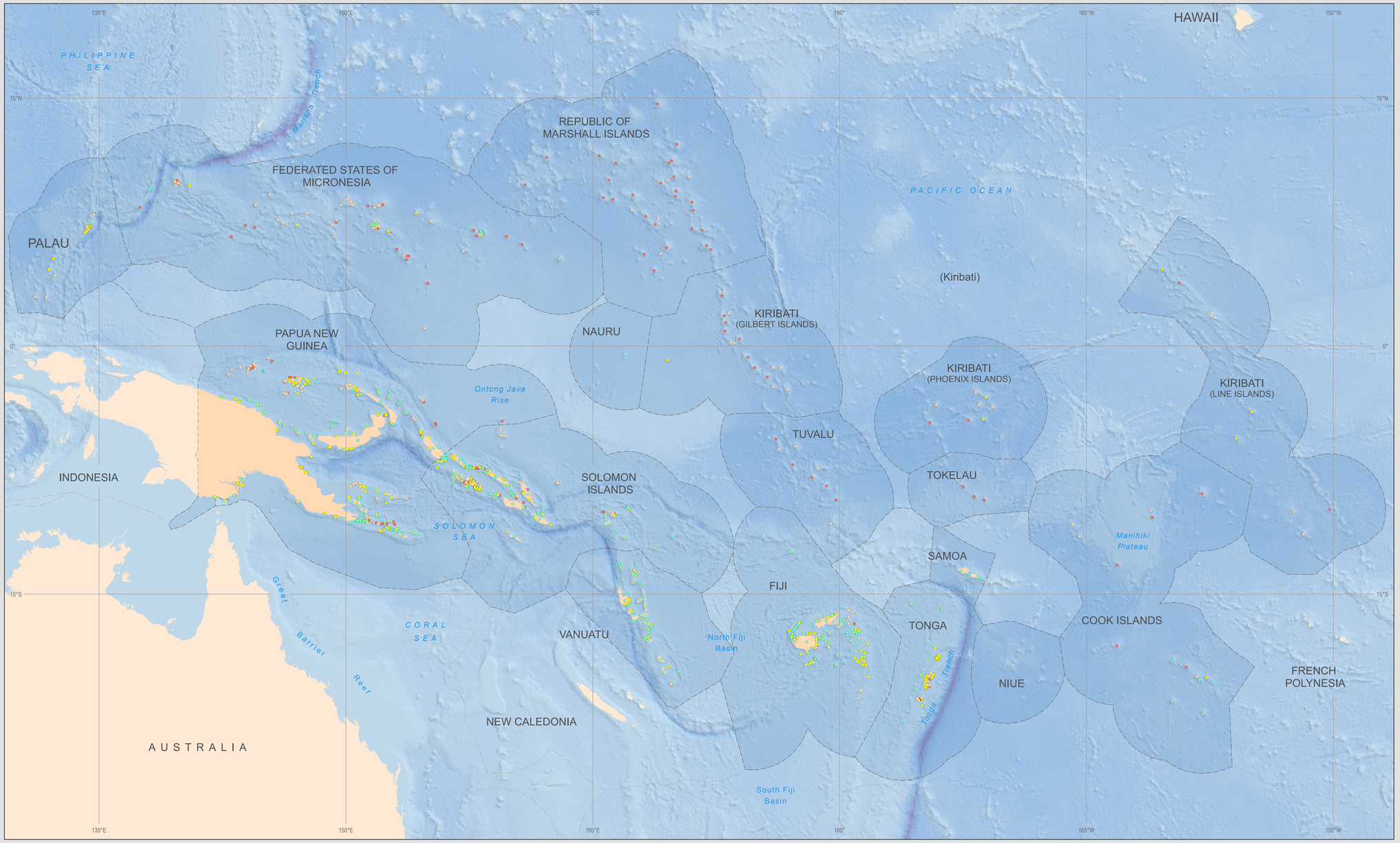
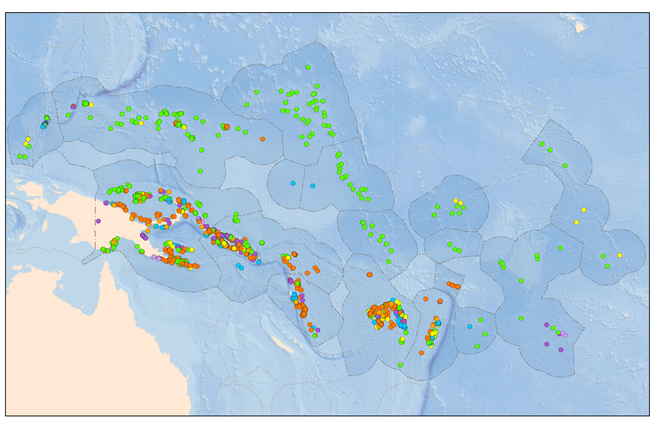
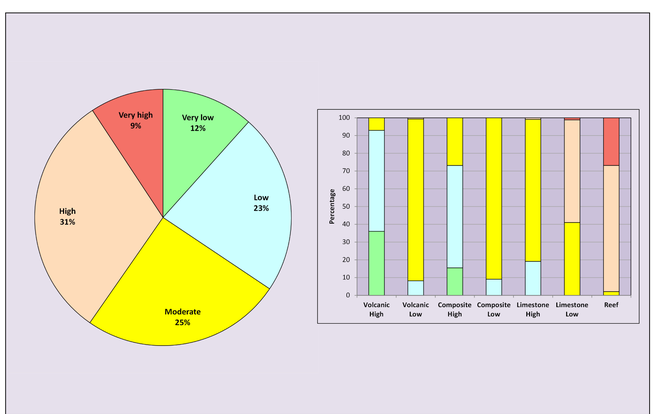
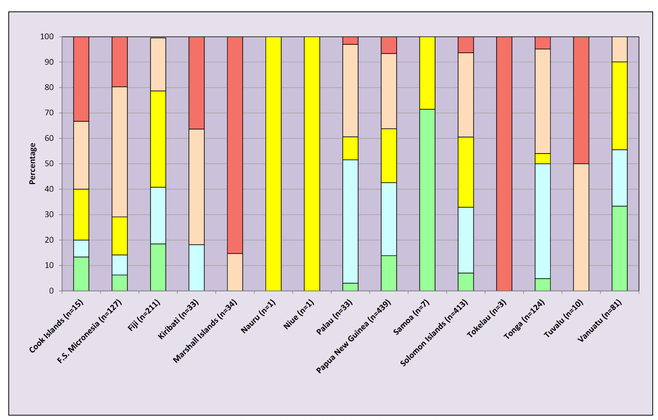




Island type distribution in the Pacific: Volcanic High; Volcanic Low; Limestone High; Limestone Low; Composite High; Composite Low; Reef



Distribution of islands based on indicative susceptibility. Indicative susceptibility by island type.



Indicative susceptibility - Distribution patterns by country.

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INDICATIVE SUSCEPTIBILITY OF ISLAND TYPES TO CLIMATE CHANGE BASED ON ISLAND TYPE, AREA, MAXIMUM ELEVATION AND CIRCULARITY

SHEET 2 OF 3

SCALE 1:10 000 000

0 250 500 750 1000 Kilometres

WORLD MERCATOR PROJECTION
WGS84

INDICATIVE SUSCEPTIBILITY OF ISLAND TYPES TO CLIMATE CHANGE BASED ON ISLAND TYPE, AREA, MAXIMUM ELEVATION AND CIRCULARITY.

Indicative susceptibility is an indicator of potential structural change of islands from meteorological and oceanographic processes. Potential changes at a whole-island scale are based on the relative differences between the structural characteristics and oceanic settings of islands for a range of variables; including lithology, circularity, maximum elevation and area. The criteria describing each variable are based on broad-scale information that was readily available or easily calculable.

A primary assessment in which each variable is ranked on a four-point scale (without weighting) was applied to the 1532 islands in the database. This exercise was conducted to indicate potential change of island land systems for both interdecadal and longer periods. The rationale for the use of each variable is as follows:

• Lithology refers to relative hardness and hence resistance to change by metocean processes. An island comprised of unconsolidated sediments is more likely to change its form over an extended period than a hard-rock volcanic island.

• Circularity is measured as roundness or conformity to a circle. A round island is one with the smallest possible perimeter relative to area. In general, the susceptibility of an island's coast to change decreases with increasing roundness due to reduced exposure and susceptibility to marine inundation.

• Elevation provides a measure of the susceptibility of an island to marine inundation. It is important to stress this is a whole-of-island measure. Use of maximum elevation as an estimate is misleading because in many places, land subject to inundation is on narrow plains and terraces skirting higher land. This point is addressed at lower, more detailed levels in the hierarchy.

• Area is another variable related to whole-of-island geometry (structure) and also requires modification for finer-scale assessment. Arguably at a broad scale it has relevance only in combination with the other variables such that the larger an island the less susceptible the whole island may be to changing metocean conditions.

(1) Lithology		(2) Circularity		(3) Elevation		(4) Area	
Material	*Rank*	*Roundness*	*Rank*	*Maximum elevation (m)*	*Rank*	*Area (km^2)*	*Rank*
Volcanic high or Volcanic low	1	Round 0.75-1.00	1	>100	1	>100	1
Composite high or composite low	2	Subrounded 0.5-0.749	2	30-99.99	2	10-99.99	2
Limestone high or limestone low	3	Subangular 0.25-0.499	3	10-29.99	3	1-9.99	3
Reef island	4	Angular 0-0.249	4	<10	4	<1	4

Indicative susceptibility

- VERY LOW
- LOW
- MODERATE
- HIGH
- VERY HIGH

BIBLIOGRAPHIC REFERENCE:
Nunn, P., Kumar, L., Eliot, I. McLean, R. (2014). Regional Coastal Susceptibility Framework for the Pacific Islands. Report prepared for the Government of Australia, Department of Environment, 77 p. [38 figures, 35 tables].

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Cartography by Cate MacGregor, University of New England.

Background bathymetry image is derived from a grid by W.H.F. Smith and D.T. Sandwell, Global Seafloor Topography from Satellite Altimetry and Ship Depth Soundings, Science v.277, pp. 1956–1962, 26 September 1997.

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