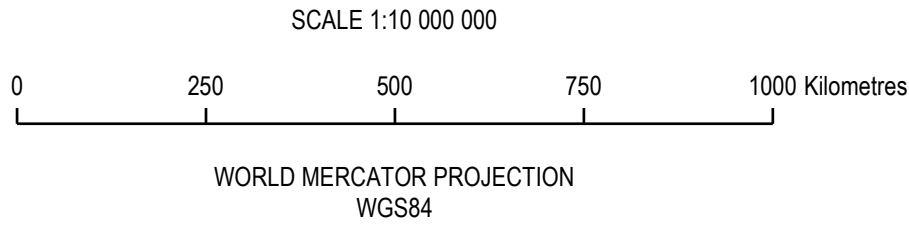


## ISLAND TYPES IN THE PACIFIC REGION

### SHEET 1 OF 3



#### ISLAND TYPES IN THE PACIFIC REGION

A classification of island types in the Pacific was produced on the basis of the lithology (or rock type) and maximum elevation of each island. These two variables – lithology and elevation – reflect the dominant controls on key diagnostic characteristics of Pacific islands including their relief, drainage (surface and subsurface) erodibility and resistance, and their landscapes and landscape processes. Four major types of lithology are distinguished: volcanic (igneous), limestone (carbonate), composite (less than 80% volcanic and less than 80% limestone), and reef (unconsolidated sediment) islands. Continental (non-oceanic) islands were excluded. Though there is great diversity in the maximum elevation of islands in the Pacific, a simple distinction between islands with a maximum elevation above 30 m (high islands) and below 30 m (low islands) is considered to adequately capture the diversity of this criterion. Thus, the final classification involves eight categories, namely Volcanic high islands, Volcanic low islands, Limestone high islands, Limestone low islands, Reef islands, Composite high islands and Composite low islands.

Sources of lithological and elevation information for this classification come from Google Earth, regional and national geological and topographical maps and reports, and expert knowledge. This is a simple classification of Pacific island types. However, it should be noted: (1) that few islands comprise just one lithology; and (2) that it was not critical to get the exact maximum elevation of an island but only to determine whether the maximum elevation was greater or less than 30 m.

The identification of island type for each of the 1532 islands in the database can be used as the basis for a quantitative assessment of the degree to which particular islands are exposed to change from external (climate and ocean) processes.

#### VOLCANIC HIGH ISLANDS

Those islands which are composed of at least 80% igneous rock types that rise to an elevation of at least 30 m above mean sea level.

#### VOLCANIC LOW ISLANDS

Those islands which are composed of at least 80% igneous rock types and rise to a maximum elevation of 30 m above mean sea level.

#### LIMESTONE HIGH ISLANDS

Those islands which are composed of at least 80% calcareous rock types and rise to an elevation of at least 30 m above mean sea level.

#### LIMESTONE LOW ISLANDS

Those islands which are composed of at least 80% calcareous rock types and rise to a maximum elevation of 30 m above mean sea level.

#### COMPOSITE HIGH ISLANDS

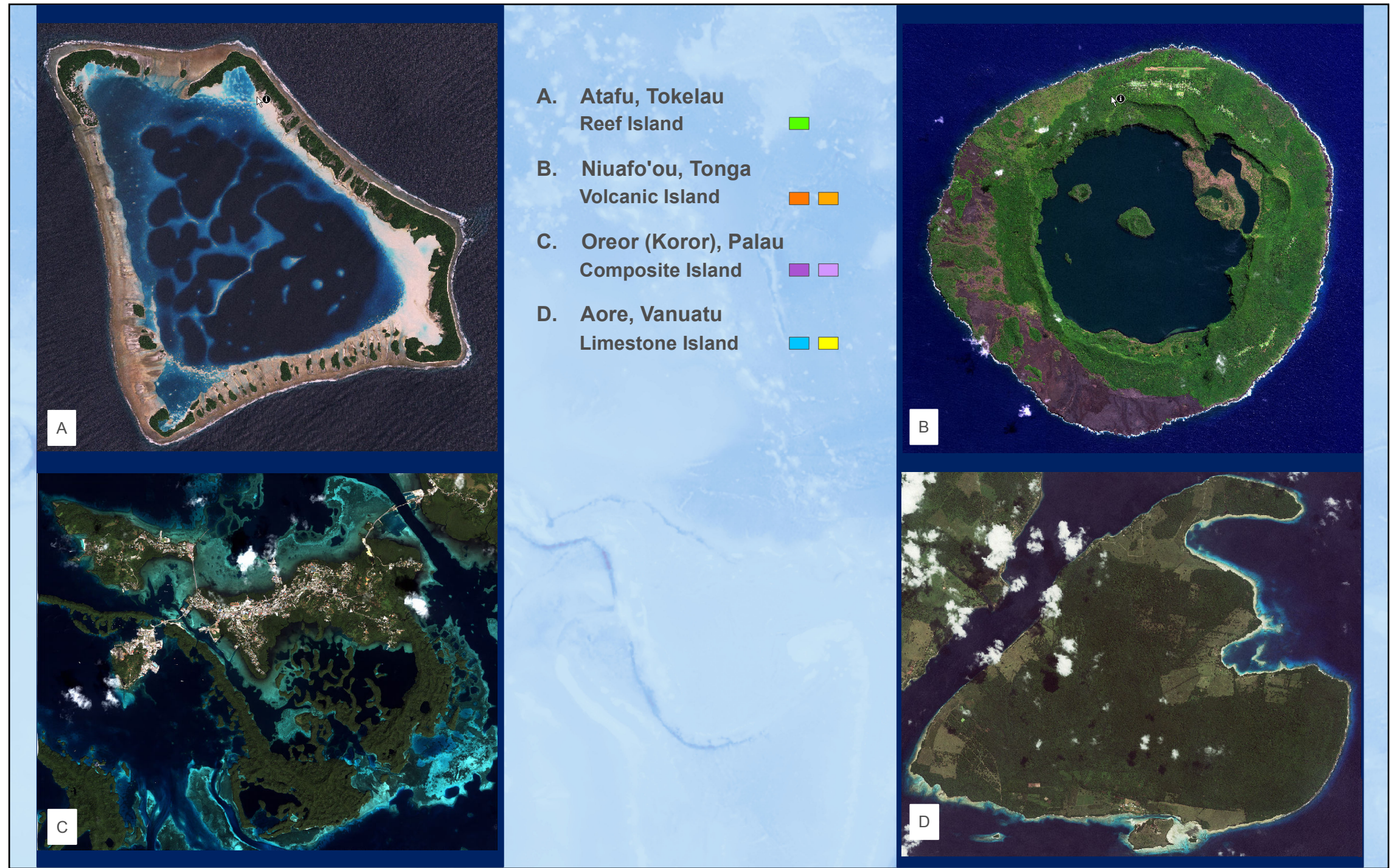
Those islands which are composed of both volcanic and calcareous rock types (each less than 80%) and rise to an elevation of at least 30 m above mean sea level.

#### COMPOSITE LOW ISLANDS

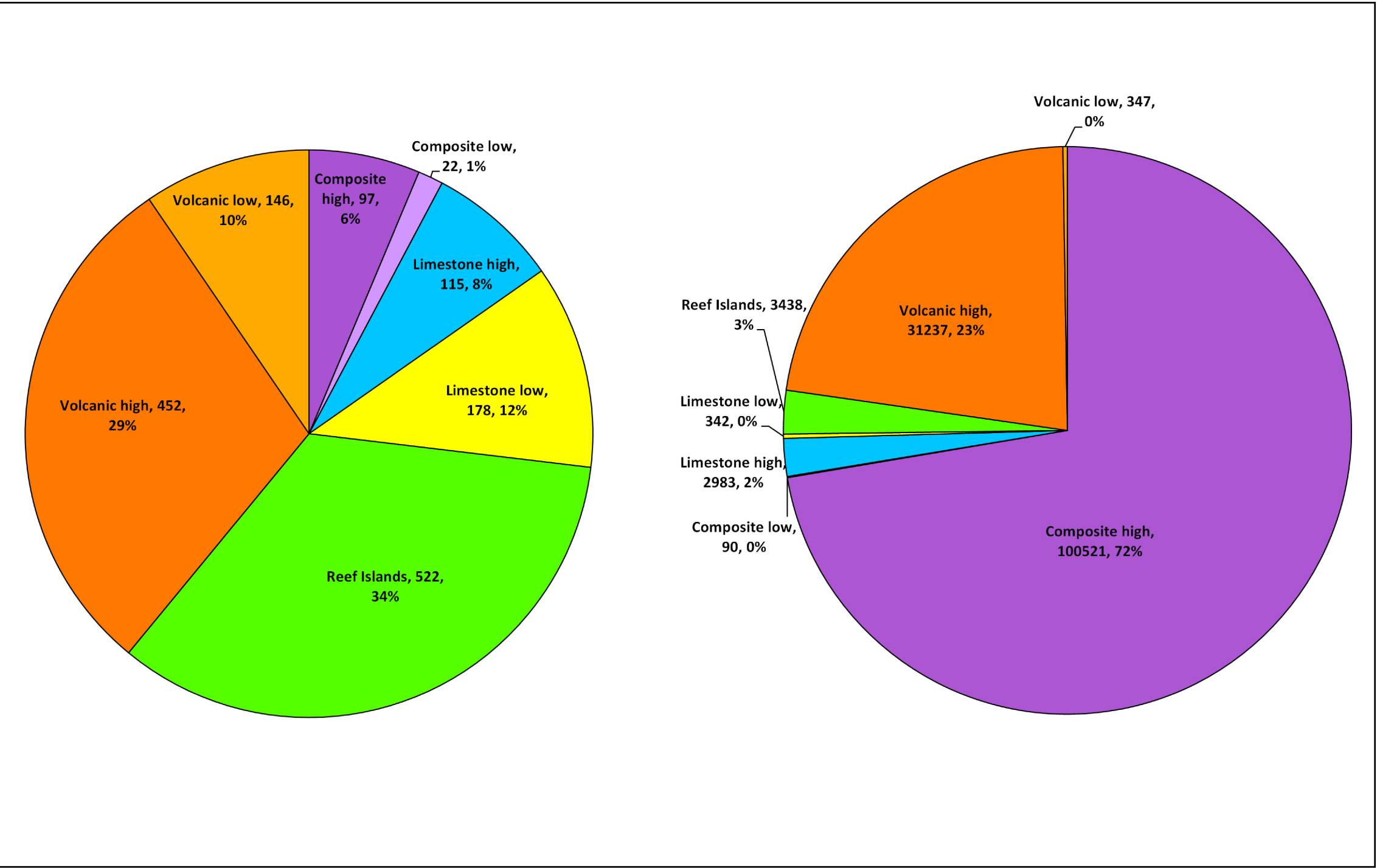
Those islands which are composed of both volcanic and calcareous rock types (each less than 80%) and rise to a maximum elevation of 30 m above mean sea level.

#### REEF ISLANDS

Those islands which are composed of at least 80% unconsolidated sediments (derived from adjacent offshore areas) that have accumulated on a shallow flat (shoal), commonly biogenic (reefal) in origin. While sometimes easily confused with lower types of low limestone islands (see above), reef islands tend to rise no more than 3 m above mean sea level and are generally characterised by shorelines that change position faster than those of other island types.

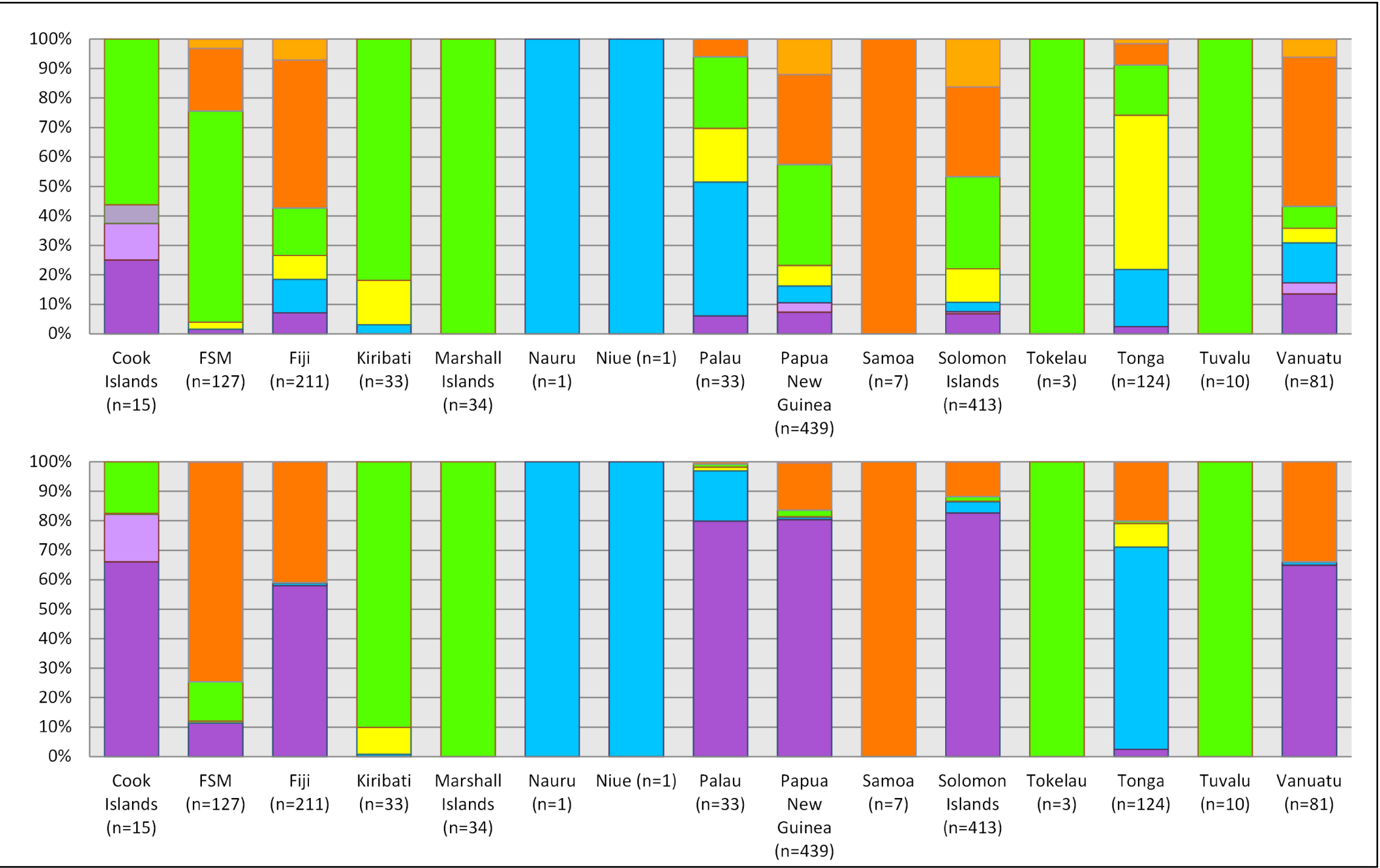


Examples of island types.



Left: Distribution of island types by count.

Right: Distribution of island types by area (sq km). New Guinea is not included in the area calculation.



Upper: Island types distribution for each country based on counts.

Lower: Island types distribution for each country based on area.

#### 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

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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 v277, pp. 1956-1962, 26 September 1997.

Exclusive economic zone dataset is derived from Exclusive Economic Zones of the World - version 8. VLIZ (2014). Maritime Boundaries Geodatabase, version 8. Available online at <http://www.maritimerregions.org/>.

