

AIRBORNE OBSERVATIONS OF THE ALBEDO OF NAURU

A forward model has been used to examine the relationship between aircraft measurements of the albedo of Nauru and the surface albedo of the island. Measurements from five passes over Nauru, made with an instrumented aircraft during the Nauru'99 field campaign, were used to construct a first guess map of Nauru's albedo.

With these data as surface input values, the model was used to calculate the albedo along each flight leg. By a process of manual iteration the values in the surface map were adjusted until the model results reproduced the essential features of the measurements.

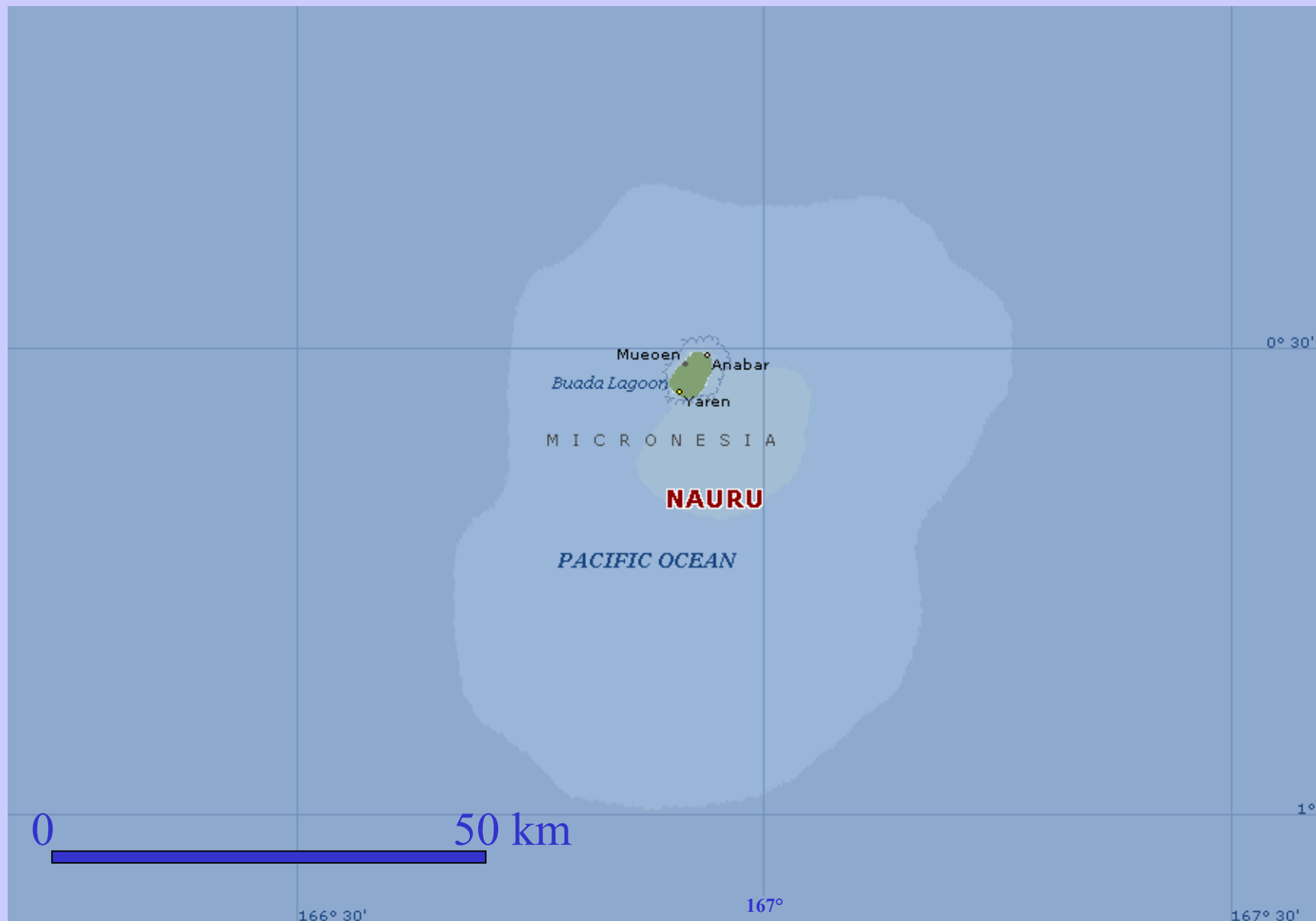
Often, large differences between the albedo measured at a particular location and the albedo of the surface below that location were observed. A sensitivity study showed that the limited number of measurement flight legs meant that significant areas of the albedo map remained unverified.

This sensitivity technique could be used in experimental planning to ensure adequate coverage of the area being investigated.

The average albedo of Nauru was estimated to be $18\% \pm 2\%$.



Where is Nauru ?

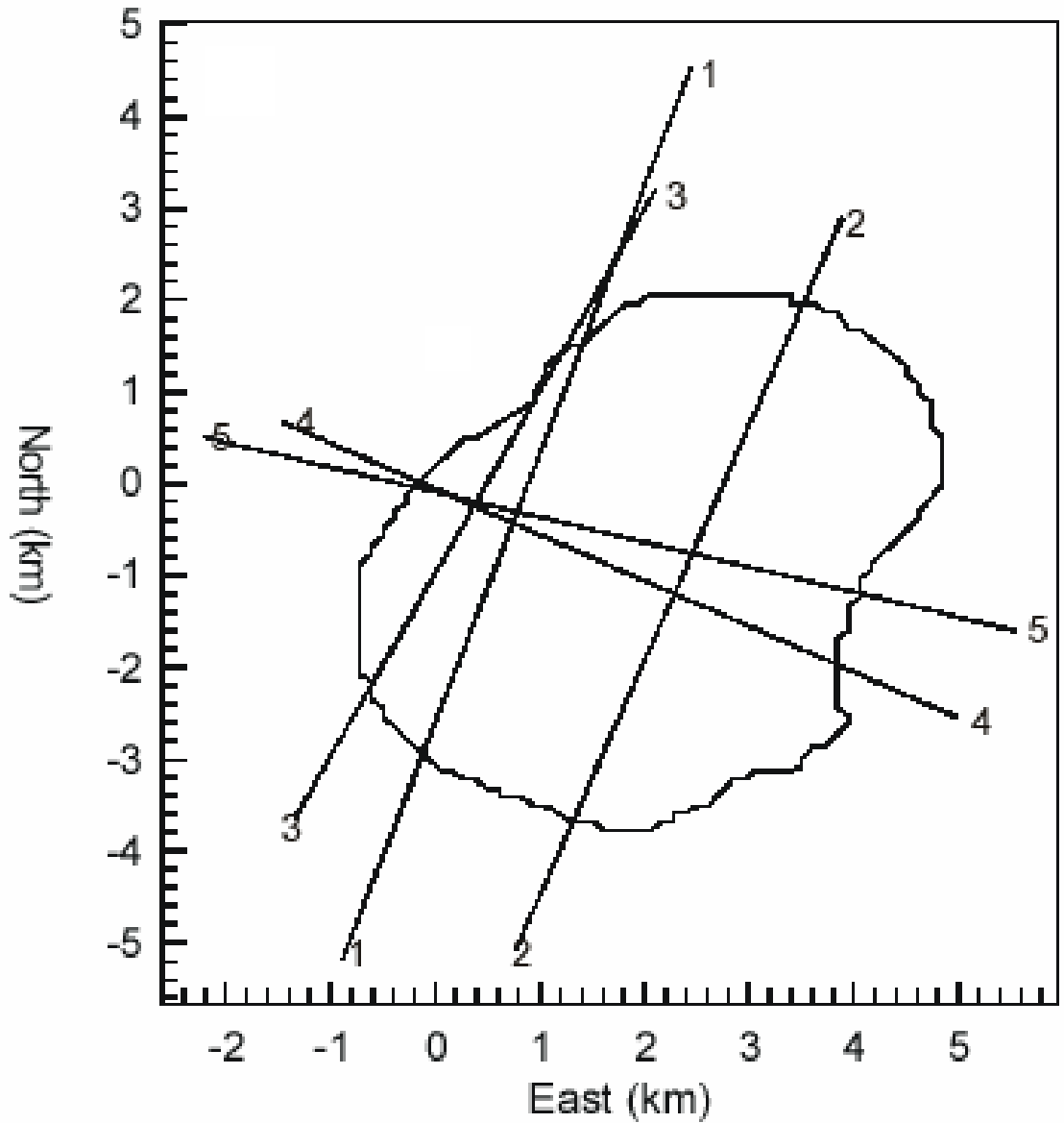




NAURU



Aerial Photo



Flight tracks

Aerial Photo



Albedo analysis



NAURU

Albedo

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Details on this analysis of the airborne measurement of the albedo characteristics of Nauru Island have been published by *Matthews, S., Schwerdtfeger, P. and Hacker, J.* in the “Australian Meteorological Magazine”, Vol. 51, pp. 229–236 (2002).

The title of the paper is:

Use of Albedo Modelling and Aircraft Measurements to Examine the Albedo of Nauru.