

# The Karst Team

With more than 1 600 km<sup>2</sup> of limestone terrain, i.e. nearly half of the total area of the island, the karst of Santo was an important target of the Santo 2006 expedition. In a larger context, Santo karst was an exciting objective in the Pacific for three reasons. First, it has the largest extent of karstified limestone in the region after New Guinea. Second, it had the least known subterranean fauna among the large islands of the region (Fig. 312). Third, basic sedimentological and archaeological data were already available.

The goals of the karst team were to inventory as completely as possible the biodiversity of karst habitats, and to collate data regarding present and past environments in order to better understand the biodiversity patterns of the island.

Before sending a large team of scientists to a remote part of the world like Santo, the biodiversity potential of the area had to be evaluated, more particularly in its most characteristic and hidden component, i.e. cave fauna. Since literature about regional biodiversity was very scarce, the project

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leaders funded two prospective expeditions in 2005, one focusing on caves and terrestrial cave fauna, the other one on underground waters, diving and aquatic fauna. Results were very promising, so we rapidly set up the karst team for the Big Trip of 2006.

The team in charge of the scientific study of the Santo karst (Fig. 313) included 20 people from Australia (1), France (12), New Caledonia (3), Indonesia (1), Spain (2) and UK (1). Two Ni-Vanuatu (Charley and Faustin) and Rufino Pineda provided invaluable assistance in the field. Altogether, we had a broad panel of scientific and technical expertise covering human, physical and historical aspects of the karst, as well as soil, cave and aquatic karst invertebrates. A large network of specialists were at least associated with our work, providing additional taxonomic expertise.

We operated in the field as three core teams, with specific targets and investigation tools:

- A team of sedimentologists, palaeontologists and archaeologists;
- A team of hydrobiologists, with the support of experienced cave divers;
- A team of terrestrial biologists, with the support of experienced cavers.

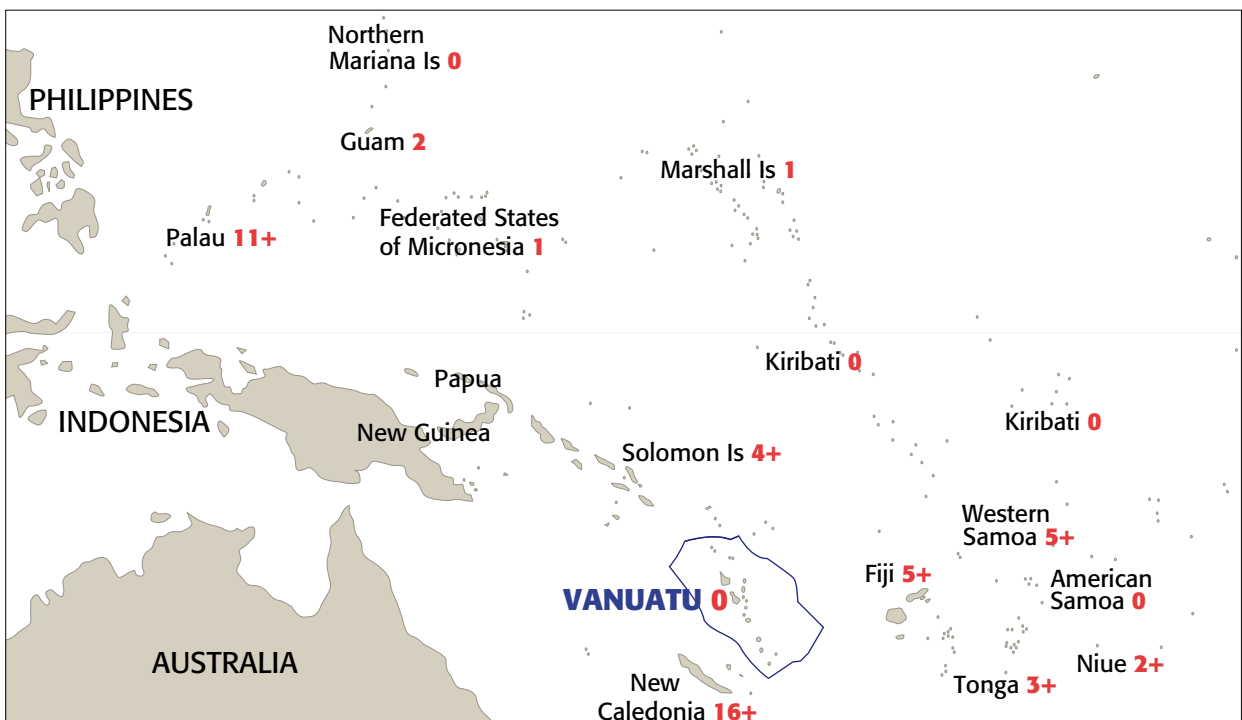


Figure 312: Subterranean fauna of the western Pacific, state of the art before Santo 2006. The approximate number of cave-obligate species is given for the main island-groups; + indicate records of additional not identified cave species.



Figure 313: The Karst team.

Field work focused on the large limestone block of eastern Santo, with a flash-trip to Cape Cumberland. We mostly operated in one-day trips, made possible by a relatively easy access to most parts of the karst. Technically difficult caving and diving explorations as well as remote areas of the island required overnight and sometimes an expedition of several days (Figs 314 & 315).

The collected material, i.e. bones, sediments, animals, water and soil samples, was labelled, processed and sorted at a gross level at the end of each trip, in the CETRAV building north east of Luganville, our base camp (Fig. 316).

The karst team benefited from an unexpectedly favourable weather in September 2006, which allowed uninterrupted activities. After a month of field work, more than 650 samples from cave, soil, terrestrial and aquatic habitats as well as hundreds of sediment, palaeontological and archaeological remains had been obtained. A large part of this material has been dispatched for study to specialists worldwide, and several papers have been already published, including new taxa among crickets, springtails and Crustacea.

The karst component of Santo 2006 was a great success. Soil and cave karst biodiversity of the island changed from the least known to the best known of the large Pacific islands. The reader will find in the following pages a presentation of the main results obtained during this exceptional expedition.



Figure 314: Boat is often the most efficient transportation to reach many coastal areas.



Figure 315: "En route" for the Malo island caves, by truck.



Figure 316: In the lab of the base camp.