

BOOK REVIEWS - RECENSIONI

ANTARCTICA. GEOMORPHOLOGICAL ATLAS.
Karta House, St., Petersburg, Russia, 2011

The Geomorphological Atlas of Antarctica has been recently published in Russia by the Karta House with the contribution of several scientific structures and organizations among which: the Geomorphology Department of the St. Petersburg State University (SPbSU); the Marine Geology Prospecting Polar Expedition; the Research Institute of Ocean Geology and Mineral Resources; the Arctic-Antarctic Research Institute. The atlas, edited by Professor Andrey Zhironov of the St. Petersburg State University, contains more than a hundred multi-scale geomorphological maps, accompanied by explanatory texts, diagrams and photos. It is divided into seven sections which describe the different aspects of the superficial, subglacial and submarine relief of Antarctica.

The scientific staff of the atlas has collected and processed a huge number of geomorphological and paleogeographic data obtained with various methods (field survey, orbital and airborne image interpretation, geophysical soundings, sidescan geolocation, isotopic dating of rocks) by the Soviet and Russian expeditions to specific sectors of Antarctica (Lambert Graben, Princess Elizabeth Land, Lake Vostok Basin) but also, for the whole continent, by foreign and international expeditions and projects.

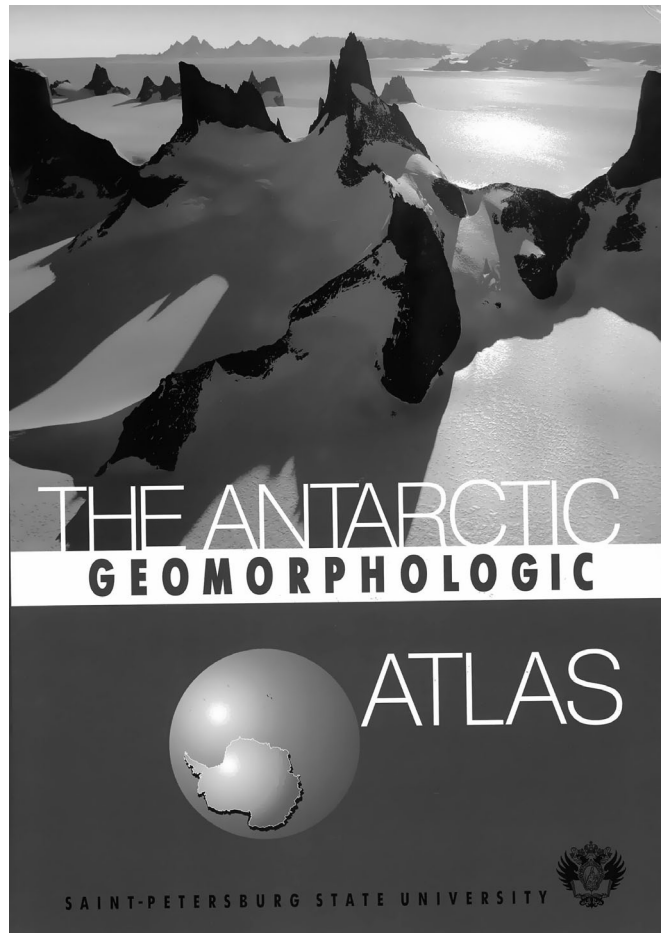
A common base for the atlas cartography is the hypsometric map of the Antarctica subglacial - subaqueous surface, compiled by international scientists within the BEDMAP project. On this base, the following operations have been performed: multiscale geomorphological mapping, morphotectonic analysis, quantitative analysis of neotectonic and glacio-isostatic movements, study of glaciodynamics, study of coastal morphogenesis. The same legend and graphic style have been used for all the maps in order to make them comparable.

The atlas is characterized by an innovative system of integrated geomorphological analysis based on the meronymy relationships (a type of part-whole hierarchy) intervening between subaerial, subglacial and subaqueous landforms and morphogenetic processes. This morphological approach, proposed by Professor Alexander Lastochkin and co-workers (SPbSU), has already been applied to a wide range of practical problems including land mapping

for various management purposes, mapping of the Arctic Ocean shelf and geomorphic risk assessment.

To conclude, the Geomorphological Atlas of Antarctica is a publication of noteworthy scientific interest that, for the first time in the world, provides a complete geomorphological description and interpretation of a whole continent. A full English translation of the Russian text is particularly recommended as it would allow the international scientific community to access the impressive set of maps, explanatory notes, tables and references present in the atlas.

FRANCESCO DRAMIS



M. GUTIÉRREZ, *Geomorphology*. CRC Press (Balkema), Leiden, The Netherlands, 2013, 1018 pp., figs., t., bibl.

This is the English edition of the author's Spanish text, improved and expanded. It is a rather large volume that aspires to be a basic text, a manual of General Geomorphology that focuses on the various fields of study of the earth's morphology.

A brief introduction on the history of the thoughts and theories of morphogenesis precedes the basics on *Structural Geomorphology* and *Tectonics* and *Volcanic Geomorphology*. The chapter *Weathering and Resulting Landforms* is integrated from the *Karst Geomorphology*. *Mass Movements* follows. A great deal of attention is devoted to *Fluvial Geomorphology* and *Eolian Geomorphology*, each with its own extensive chapter. The first part of the volume closes with the quintessential azonal domain, the coastal domain (*Coastal Geomorphology*).

The second part of the volume is dedicated to *Climatic Geomorphology* (*Glacial G.*, *Periglacial G.*, *G. of Arid Lands*, and *G. of Tropical Zones*) and *Environmental Change*, particularly with respect to glacial, periglacial, arid and tropical regions. The volume ends with a very abundant, somewhat Hispanic-centric bibliography... with no less than 3600 quotes. It is accompanied by a generous iconography where photos taken in various regions of the world prevail. The illustrations are less in number, simple but clear.

The language of the text is precise and simple, therefore one of the merits of the book is the easy understanding of the concepts and problems. Naturally, this notion will be very useful to university students, who are facing the great breadth of the geomorphology knowledge. Additionally, it is important because this is a science that has not yet solved the epistemological question of a general, Einsteinian theory, to which to trace the strings of the geomorphic phenomena and processes and the interpretation of the forms of the earth's surface. This is also evident from the choice of the author, as it was mentioned above, to subdivide the text into two distinct parts, the second of which is dedicated to Climatic Geomorphology, thus keeping Fluvial and Eolian Geomorphology out of the climatic picture, which is out of the ordinary, at least for the latter. It is a bit like the eternal issue raised by the theory of the cycle of erosion (the «Geographical Cycle») of W.M. Davis, who claimed to have found the general key to interpreting terrestrial morphology, but then, with reason, subject to radical criticism. The author, who is an expert on climatic geomorphology, is well aware of it when, after reporting the morphoclimatic zones classifications of Budel (1948), Peltier (1950), Budel (1963), Tricart and Cailleux (1965), Wilson (1968), Budel (1977), Chorley, Schumm

and Sudgen (1984), writes «Monographs published on various morphoclimatic zones have reduced the number of zones to four: glacial, periglacial, comprised and wet tropical. Temperate regions have been treated together because of the number of relict landforms present» (p.482). The reader may ask the question: are the temperate zones included in the climatic geomorphology? (Even after the identification of relict forms?). However that might be, the author's predilection for morphogenetic processes is clear, in fact he excels in the description of these, whereas a very limited space is reserved for morphotectonics and structural morphology. The chapters and topics dedicated to climate changes and their effects on the terrestrial morphology are nicely highlighted. They are interesting. It is evident that the author's main concern is being able to explain how, from geomorphological knowledge stems applicative knowledge, which is essential to manage the earth's surface - the world we live in - and that we need to understand it and love it.

«Geomorphology» by Gutiérrez is a general, broad and sufficiently thorough, well-written and well-illustrated opera, a valid tool for university studies and a pleasant reading.

P.R. FEDERICI

