Department of Biological Chemical and Pharmaceutical Sciences and Technologies. (STEBICEF)

POSTI	N. 1
Project	PRIN 2022 PNRR - bando D.D. n. 1409 del 14-09-2022: "Response of Mediterranean marine calcifiers to CO2 variability during time windows in the Plio/Pleistocene (ReMePP)". Codice Progetto: PRJ-1566
S.C.	04/A2 - Structural Geology, Stratigraphic Geology, Sedimentology and Paleontology.
S.S.D.	GEO/01 Paleontology and Paleoecology.
Location of research activities:	Department of Biological Chemical and Pharmaceutical Sciences and Technologies. (STEBICEF)
Venue for teaching activities:	Department of Biological Chemical and Pharmaceutical Sciences and Technologies. (STEBICEF)
Functions to be performed - type of teaching and scientific commitment:	Paleoecological-paleoenvironmental and planktonic foraminifera reconstructions for eco-biostratigraphic analysis, useful for paleoclimatic reconstructions to be carried out in PRIN project: Response of Mediterranean marine calcifiers to CO 2 variability during time windows in the Plio/Pleistocene (ReMePP). **Research activities are consistent with the implementation of NRP 21/27:** **Great scope of research:** Climate change, mitigation and adaptation; **Area of focus:** PE10_6. Transition to a climate-neutral society enabled through advanced climate science and responses for climate mitigation and adaptation. **Articulation:** the researcher to be hired will be expected to work on the PRIN project (P2022BSJRY) (Response of Mediterranean marine calcifiers to CO 2 variability during time windows in the Plio/Pleistocene (ReMePP), which aims to reconstruct the effects of past levels of CO 2 in the atmosphere by analyzing global marine calcium carbonate productivity. The study is to be carried out in outcropping Mediterranean successions in Sicily that characterize some key time intervals of the Neogene-Quaternary, during different transitional climatic periods. The Mediterranean is of particular interest because it is particularly exposed to natural hazards in terms of desertification, acidification of water masses and loss of biodiversity. The research plans to study the following Plio-Pleistocene time windows. i) Lower Zanclean Warm Period (EZWP, 5,2-4,85 Ma); ii) Pliocene Warm Period (PWP, 2.95-3.3 Ma); iii) Pliocene-Pleistocene Transition (PPT, 2.7-2.4 Ma). The selected geological successions (Capo Bianco-Eraclea Minoa, Punta Piccola (Realmonte and Monte San Nicola, Gela) are astro-bio-

	magneto-chronologically well constrained and are characterized by strong variations in foraminiferal associations, deposited during periods of high CO2 concentration. A multidisciplinary approach will be used to reconstruct CO 2 concentration by performing: a) quantitative analysis on foraminiferal shells; b) isotopic analysis of the d18 O e δ C, δ 18°, δ 13C, δ 11 B-pH; c) Analysis on alkenones for surface temperature reconstruction of the Mediterranean water column. Thus, the main objectives will be: 1) Analyze turnover in foraminiferal associations during PPT, PWP, and EZWP, which are times of major perturbation in CO2; 2) To estimate how the marine ecosystem responded to these changes during periods without human impact; 3) Evaluate and quantify changes in weight and density of planktonic foraminifera; 4) ricostruire l'oscillazione della CO2; An innovative approach based on established and newly developed analytical methods will be applied to this research. Therefore, a capable and experienced figure belonging to the Scientific Disciplinary Area GEO/01 is required..
Maximum number of publications:	12
Language skills:	English