

SEDIMENTOLOGY, STRATIGRAPHY AND PALEO GEOGRAPHY

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Our research group covers a wide range of expertise and specializations aimed at studying sediments and sedimentary rocks, their temporal (stratigraphic) and spatial (paleogeographic) evolution through time, the record of environmental changes that occurred in the past as registered in sedimentary rocks, as well as nature and characteristics of the natural resources hosted therein. In doing so, our research group benefits also from specific collaborations with experts from other disciplines of the Earth Sciences both from academia and industry.

The research lines developed by our research group are diverse, referring to the two *curricula* of the PhD program (CURRICULUM "EARTH SYSTEM" and CURRICULUM "GEORESOURCES").

In detail, the ongoing researches can be framed in the following subjects, related to the two *curricula* according to the focus of the specific research:

- Sedimentology, facies analysis, lithostratigraphy, and chronostratigraphy (e.g., magnetostratigraphy) of sedimentary systems both in the continental and marine realms
- Depositional processes and geometry of siliciclastic deposits
- Architecture and evolution of carbonate platforms in different geodynamic settings
- Paleogeography and basin evolution at regional and global scale
- Diagenesis of carbonate and siliciclastic sediments
- Interpretation of depositional systems and environmental changes in the geological record.

The research subjects proposed will be conducted using a strong field-based approach (data collection in the field) coupled with experimental laboratory analyses thanks to the facilities available at the *Dipartimento di Scienze della Terra "A. Desio"* and to the several collaborations of the working group with laboratories of other research institutions in Italy and abroad. The following laboratories are among those that will be most frequently used in the proposed PhD activities: microscope laboratory (including cathodoluminescence, for environmental and diagenetic studies), stable isotope laboratory (for Carbon and Oxygen on sediments and water), diffractometry laboratory (for mineralogical characterization of clay or for specific components), electron microscope/microprobe laboratory (for sediment characterization and composition), paleomagnetism laboratory (for magnetostratigraphic, paleogeographic, and sedimentological analyses), GIS laboratory (for the handling of geographical data and elaboration of 3D geological models using specific tools, as Petrel or Move). In case of specific analyses, also other laboratories will be available (i.e.; Raman, Laser ablation, etc.).