



Announcement and Invitation

The Department of Biological, Geological and Environmental Sciences of the University of Catania is hosting Prof Alfred Micallef from the Department of Geosciences, University of Malta, for the period **26-30 October 2024**.

During his stay, Prof Micallef will deliver a **short intensive course entitled, Earth's Energy Balance Modelling and Global Warming**. The course is open to all those affiliated to the University of Catania, but it is primarily intended for undergraduate and beginning postgraduate students that are new to the respective field, and who would like to enrich and widen their knowledge in the geosciences. A comprehensive set of course notes will be provided to all attendees. There will be no assessment.

The set of lectures (**12 hours** in total), to be delivered in person, will cover the following topics:

- revision of the relevant physics, as it relates to thermal radiation, e.g., radiation law of Kirchhoff, Planck's law, Stefan-Boltzmann's law and Wien's displacement law (and how the latter two are obtained from Planck's law);
- relevant thermodynamics will be explained/revised to ensure comprehensibility;
- global energy budget and its implications will be discussed in detail;
- concepts of positive and negative feedback will be introduced and employed in the understanding of the relevant mechanisms, e.g., atmospheric water vapour feedback mechanism (including the mathematical formulation);
- horizontal variations in insolation will be discussed qualitatively;
- relevant (mathematical) problems (with worked-out solutions) will be discussed, time-permitting

The **lectures will be delivered in English**. Attendees are free to ask questions during and after the lectures. Prof Micallef will be available for consultation/tutorials at most times during his stay in Catania.

