

ICDP workshop on amphibious drilling to Investigate Miocene Mediterranean-Atlantic Gateway Exchange (IMMAGE), 22-24th November, Rabat, Morocco

Marine gateways play a critical role in the exchange of water, heat, salt and nutrients between oceans and seas. Changes in gateway geometry can therefore significantly alter both the pattern of global ocean circulation and associated heat transport and climate, as well as having a profound local impact. For the past five million years Mediterranean seawater has flowed out of the Gibraltar Straits, forming a saline plume at intermediate depths in the Atlantic that contributes to Atlantic Meridonal Overturning Circulation, and deposits distinctive contouritic sediments in the Gulf of Cadiz. However, before the Pliocene, two additional marine corridors also existed through northern Morocco and southern Spain. The restriction and closure of these connections resulted in extreme salinity fluctuations in the Mediterranean, leading to the precipitation of thick evaporites during the Messinian Salinity Crisis (MSC). Understanding both the causes of high-amplitude salinity change in the Mediterranean, its impact on the position and nature of the plume of water formed by Mediterranean overflow, and the consequences for thermohaline circulation in the Atlantic, is dependent on recovering a complete record of Mediterranean-Atlantic exchange before, during and after the MSC. These sediments would also allow us to test physical oceanographic hypotheses for extreme high density overflow dynamics that do not exist in the world today on this scale.

This workshop has been funded by ICDP to support the development of an ambitious, amphibious drilling project that aims to recover a complete record of Miocene Mediterranean-Atlantic exchange. To this end we will gather an international team in Rabat, Morocco from 22-24th November 2016 to consider the feedback from both IODP and ICDP, refine the drilling strategy, target sites and analytical programme and develop the logistics, funding and outreach plans. The workshop will include a one-day fieldtrip to key gateway exposures in Morocco.

We invite all interested scientists to complete the application form and send it to r.flecker@bristol.ac.uk by 9th September 2016. Participants from ICDP member countries will be selected as a priority.