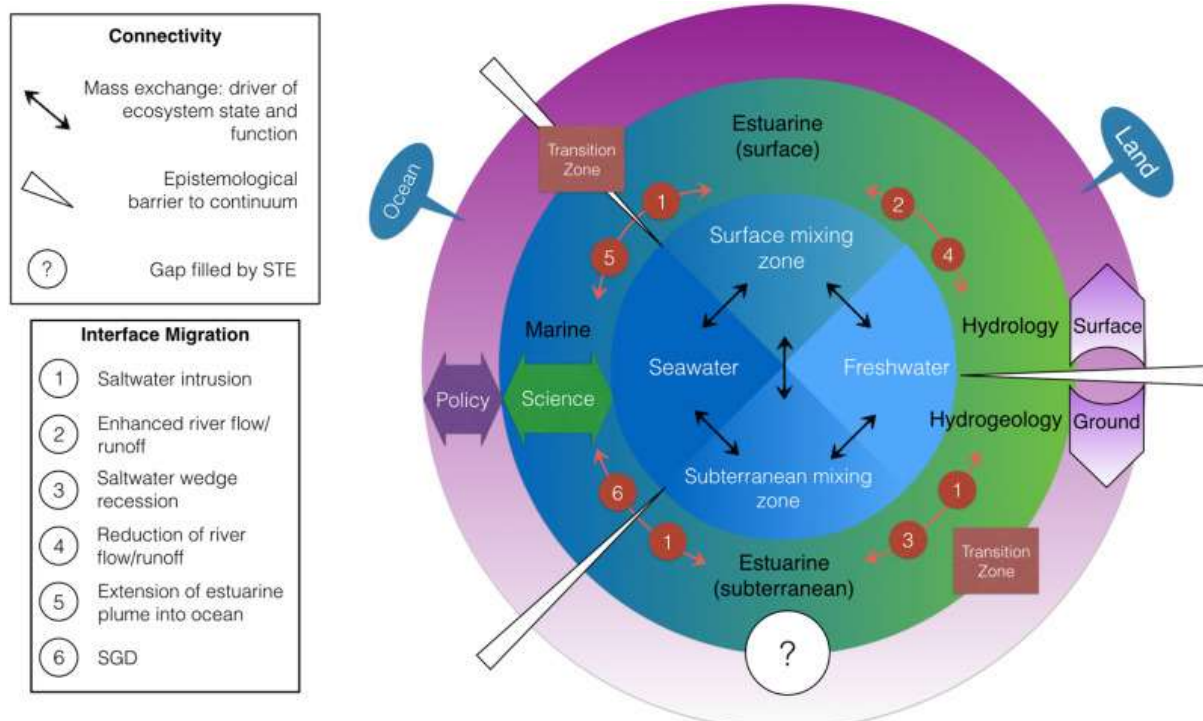


ANNUAL REPORT ON GEOTRACES ACTIVITIES IN IRELAND

April 1st, 2020 to April 30th, 2021

New GEOTRACES or GEOTRACES relevant scientific results



- Irish GEOTRACES scientist Carlos Rocha (TCD) was the lead author of a work examining the role and function of subterranean estuaries (STEs) in the context of coastal ecosystems and their associated submarine groundwater discharge (SGD) (Rocha et al, 2021).

GEOTRACES or GEOTRACES relevant cruises

- Irish expedition to the Greenland, Iceland and Norwegian (GIN) Seas during CIAAN CE20009 on the Celtic Explorer with Chief Scientist Dr. Audrey Morley (NUIG). Constraining the Impact of Arctic Amplification in the Nordic Sea: A biogeochemical approach (CIAAN) is an international, interdisciplinary and multi-themed oceanographic expedition aboard the R/V Celtic Explorer (Marine Institute Ireland) which took place between August-September 2020. CIAAN combined hydrographic surveying, modern biogeochemistry, plankton tows, planktonic foraminifera culturing and multi-core sediment sampling to fill an essential data gap in support of future paleoclimate investigations in polar regions.

New projects and/or funding

- The 2nd phase (2021-2026) of the Irish Centre for Research in Applied Geoscience (www.icrag-centre.org) was approved at the end of 2020. iCRAG2 began in January 2021 and there are GEOTRACES related projects on submarine groundwater discharge, the elemental composition of marine particles, thorium isotopes as flux tracers and elemental fluxes in the mesopelagic zone.

New GEOTRACES or GEOTRACES-relevant publications (published or in press)

- Bennion, M., Morrison, L., Shelley, R., Graham, C., 2021. Trace elemental fingerprinting of shells and soft tissues can identify the time of blue mussel (*Mytilus edulis*) harvesting. *Food Control* 121, 107515.
- Ellwood, M.J., Boyd, P.W., Cornwall, C.E., Croot, P., Currie, K.I., Frew, R.D., Hurd, C.L., Law, C., Liss, P.S., McGraw, C.M., Mosley, L.M., Sander, S.G., Stirling, C., Zitoun, R., 2020. Keith Hunter's legacy to Marine Science in New Zealand. *Marine and Freshwater Research* 71, i-iii.
- Loughlin, C., Marques Mendes, A.R., Morrison, L., Morley, A., 2021. The role of oceanographic processes and sedimentological settings on the deposition of microplastics in marine sediment: Icelandic waters. *Marine Pollution Bulletin* 164, 111976.
- Lyons, W.B., Carey, A.E., Croot, P., Henry, T., Welch, S.A., Smith, D.F., Gardner, C.B., 2020. Current chemical denudation, silicate mineral weathering and erosion in Irish catchments: reflections on the tortoise and the hare. *Irish Journal of Earth Sciences* 38.
- Menzel Barraqueta, J.-L., Samanta, S., Achterberg, E.P., Bowie, A.R., Croot, P., Cloete, R., De Jongh, T., Gelado-Caballero, M.D., Klar, J.K., Middag, R., Looock, J.C., Remenyi, T.A., Wenzel, B., Roychoudhury, A.N., 2020. A First Global Oceanic Compilation of Observational Dissolved Aluminum Data With Regional Statistical Data Treatment. *Frontiers in Marine Science* 7.
- Ramon, D., Morick, D., Croot, P., Berzak, R., Scheinin, A., Tchernov, D., Davidovich, N., Britzi, M., 2021. A survey of arsenic, mercury, cadmium, and lead residues in seafood (fish, crustaceans, and cephalopods) from the south-eastern Mediterranean Sea. *Journal of Food Science* 86, 1153-1161.
- Rocha, C., Robinson, C.E., Santos, I.R., Waska, H., Michael, H.A., Bokuniewicz, H.J., 2021. A place for subterranean estuaries in the coastal zone. *Estuarine, Coastal and Shelf Science* 250, 107167.
- Savatier, M., Guerra, M.T., Murphy, J.E., Rocha, C., 2021. Radium isotope ratios as a tool to characterise nutrient dynamics in a variably stratified temperate fjord. *Marine Chemistry* 231, 103934.
- Van Dover, C.L., Colaço, A., Collins, P.C., Croot, P., Metaxas, A., Murton, B.J., Swadling, A., Boschen-Rose, R.E., Carlsson, J., Cuyvers, L., Fukushima, T., Gartman, A., Kennedy, R., Kriete, C., Mestre, N.C., Molodtsova, T., Myhrvold, A., Pelleter, E., Popoola, S.O., Qian, P.Y., Sarrazin, J., Sharma, R., Suh, Y.J., Sylvan, J.B., Tao, C., Tomczak, M., Vermilye, J., 2020. Research is needed to inform environmental management of hydrothermally inactive and extinct polymetallic sulfide (PMS) deposits. *Marine Policy* 121, 104183.
- Xu, H., Croot, P., Zhang, C., 2021. Discovering hidden spatial patterns and their associations with controlling factors for potentially toxic elements in topsoil using hot spot analysis and K-means clustering analysis. *Environment International* 151, 106456.

GEOTRACES presentations in international conferences

- T.L. Babila, A. Morley. PP018-0004 – Navigating the changing seas of international palaeoceanographic field research. AGU Fall Meeting (Online) 9 Dec 2020.

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