

UPDATE: Follow the *Joides Resolution* research ship at sea


In place of our usual new ELI activity this time, we are referring you to websites giving updates on current research into the nature of the Earth. Both websites provide activities or investigations for students. Our notes in "Useful Links" below refer to relevant existing Earthlearningidea activities.

Much of our knowledge of global temperatures in the recent geological past and of the composition of the atmosphere has been derived from the study of cores obtained from the sediments on the sea bed. One of the research ships which has been gathering such data for several decades is the *Joides Resolution*, working as part of the

International Ocean Discovery Programme (IODP). The website www.joidesresolution.org enables students to follow the current location and research programme of the ship in real time, and to take part in blogs with members of the ship's scientific crew.

WHAT IS THE JOIDES RESOLUTION?

The *JOIDES Resolution (JR)* is a research vessel that drills into the ocean floor to collect and study core samples. Scientists use data from the *JR* to better understand climate change, geology and Earth's history. It is a part of the International Ocean Discovery Program and is funded by the National Science Foundation.



CURRENT EXPEDITION

EXPEDITION 385: GUAYMAS BASIN TECTONICS AND BIOSPHERE

On this expedition, the JR will drill at key locations in successions of sediments and sills of varying age and temperature to explore the physical and chemical gradients along present and extinct fluid pathways. The science party will also investigate subsurface microbial communities that are sustained by the chemical compounds which are present below the seafloor. This will allow us to have a better idea of their efficiency at capturing these carbon-containing products and to advance our understanding of the conditions that limit life in the depth of our planet.

Time at Sea: 50 days
Date on Ship: Thursday November 7
Time on Ship: 09:21

An extract of the Home page of www.joidesresolution.org

Meanwhile, the Lapworth Museum of the University of Birmingham, UK, has produced a web-based "comic" for younger children, explaining the work of the ship, explaining how the

ship's geoscientists use microfossils from the cores to estimate past climates. Copies may be downloaded from www.mysteriesofthedeep.org

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Topic: Web-based resources enabling school students to follow the current work of geoscientists at sea.

Age range of pupils: 11 upwards

Following up the activity: Students could use the Earthlearningidea activities shown below to

deepen their understanding of the principles involved in the use of oxygen isotopes to determine past temperatures.

Useful links: Earthlearningidea activities: https://www.earthlearningidea.com/PDF/275_Oxygen_isotopes.pdf

https://www.earthlearningidea.com/PDF/276_Oxygen_isotope_cores.pdf

Source: Websites www.joidesresolution.org and www.mysteriofthedeeep.org (accessed 22nd November 2019), summarised by the Earthlearningidea Team.

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