

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
Hands-on Space Education and Outreach (8)

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“MOTION IN THE OCEAN” A HANDS-ON EXPERIENCE IN EARTH SCIENCES

**Abstract**

Explore how water moves throughout the ocean with this hands-on activity, which uses colored saltwater and freshwater in recycled tennis-ball tubes. The experiment demonstrates how fluids move depending on their densities. Participants are able to see for themselves what happens when you pour fresh water on top of salt water in a tube. This is related to what happens when sea ice melts in the Arctic or Antarctic Ocean, since the ice is less salty than the ocean water. When sea ice freezes, it releases brine which is heavier and sinks down.

The activity is a demonstration of what really happens in our planet's oceans. It has been widely tested and proven for students and adults alike for more than 7 years. The experiment was developed by Mr. James Rock (Dakota) science educator, and further refined and tested by the author and co-author in the NASA Beautiful Earth Program. The authors explain how fluids move in our oceans, as well as relate it to indigenous perspectives of Mother Earth and the living body's salt content. The activity is paired with stunning NASA visualizations of the global thermo-haline circulation system and provides a holistic view of fluid movement and how our Earth's waters are interconnected. The activity is for ages 6 and older and great for teams of 2-3. The hands-on activity will be demonstrated and explained. Participants will also have a chance to try it out for themselves during the session.

In addition, we will highlight the upcoming Earth Science satellite mission, ICESat-2 (Ice, Cloud, and land Elevation Satellite-2) and other hands-on and citizen science programs in support of the mission.