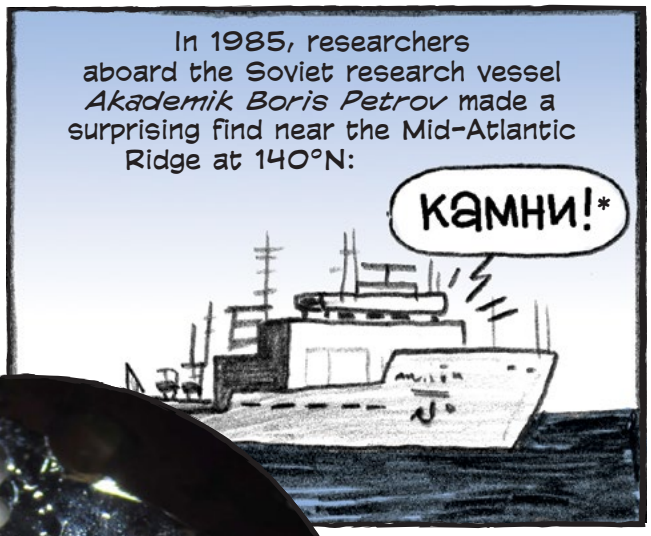
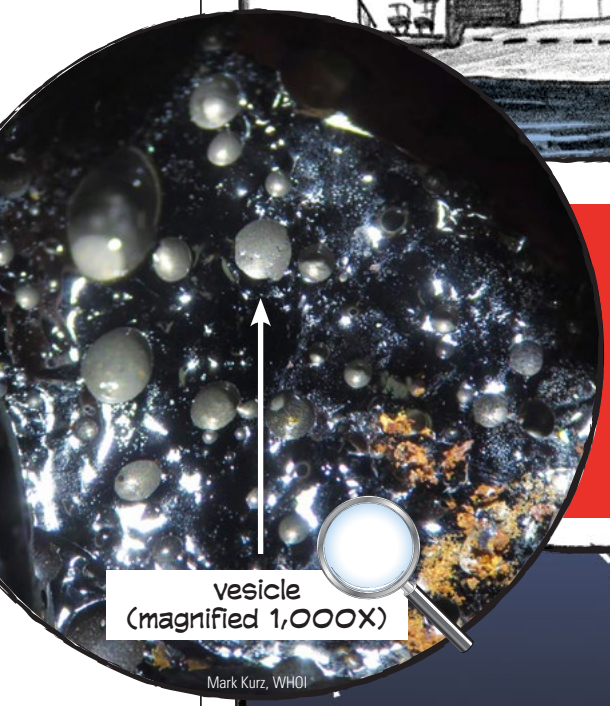
Pop Goes the Seafloor Rock

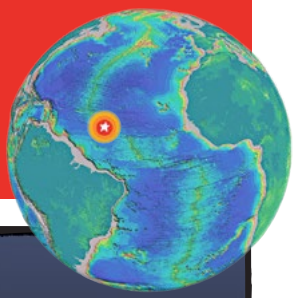
RESEARCHERS HUNT FOR SEAFLOOR LAVAS TO REVEAL THE INNER WORKINGS OF OUR PLANET

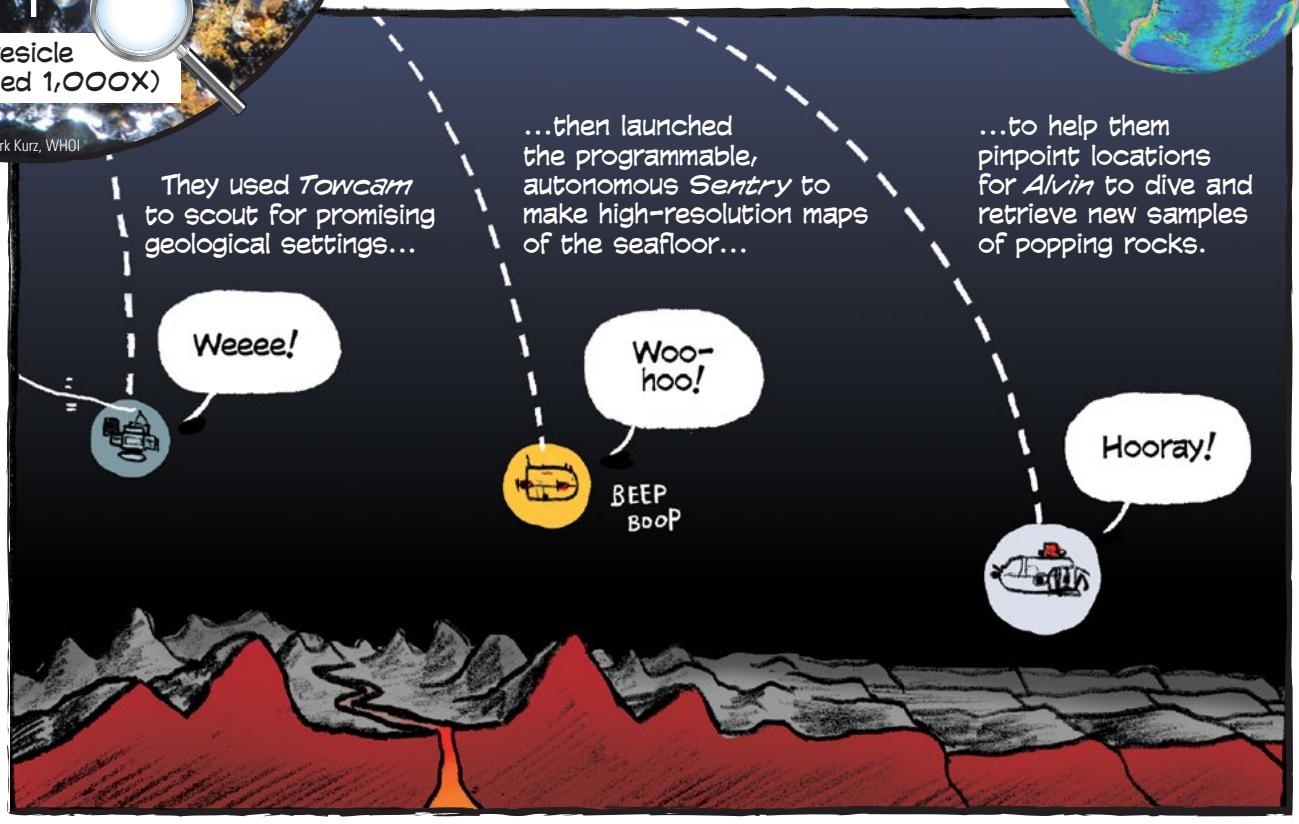


*Russian for "Rocks!" **Russian for "The rocks, they pop!"

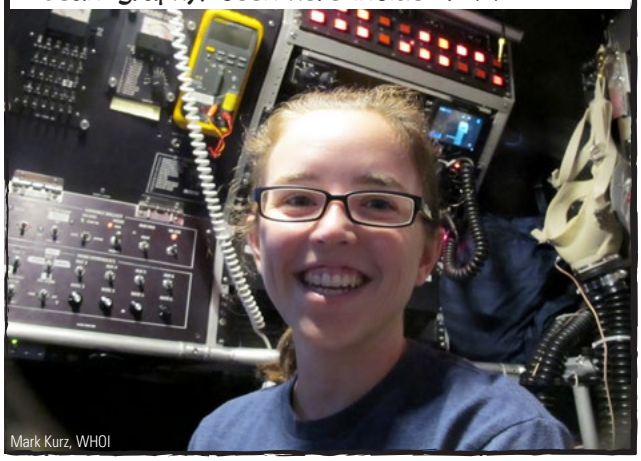


Gases from deep inside the Earth were trapped in tiny glass vesicles within the rocks. Brought to the surface, the rocks were no longer under deep-sea pressure and the gases escaped with a pop. But popping rocks have never been directly observed or directly sampled on the seafloor. Were these rocks a weird anomaly? In 2016, Woods Hole Oceanographic Institution geochemist Mark Kurz and geologists Adam Soule and Dan Fornari returned to the region.

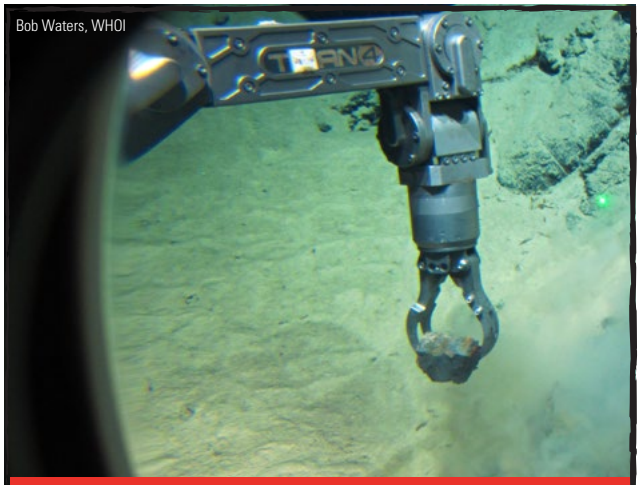




On the mission was Meghan Jones, a graduate student in the MIT-WHOI Joint Program in Oceanography, seen here inside *Alvin*.



Mark Kurz, WHOI



Bob Waters, WHOI

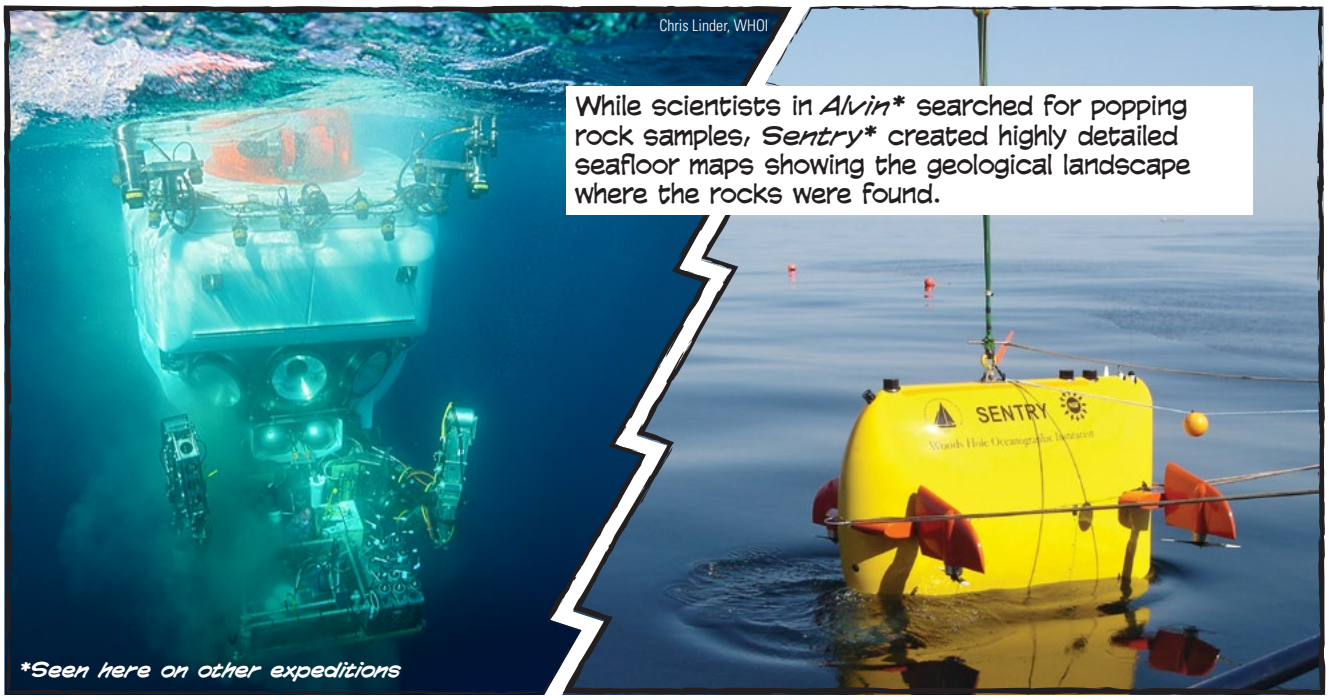
Alvin used its manipulator arm to pick up potential popping rocks on its first dive.

Mark Kurz, WHOI

When *Alvin* resurfaced, researchers brought the rocks from the seafloor into a lab on the ship. "We eagerly awaited the samples," Jones said. "When we heard a pop, everyone erupted. To have it happen on the very first dive was incredible!"

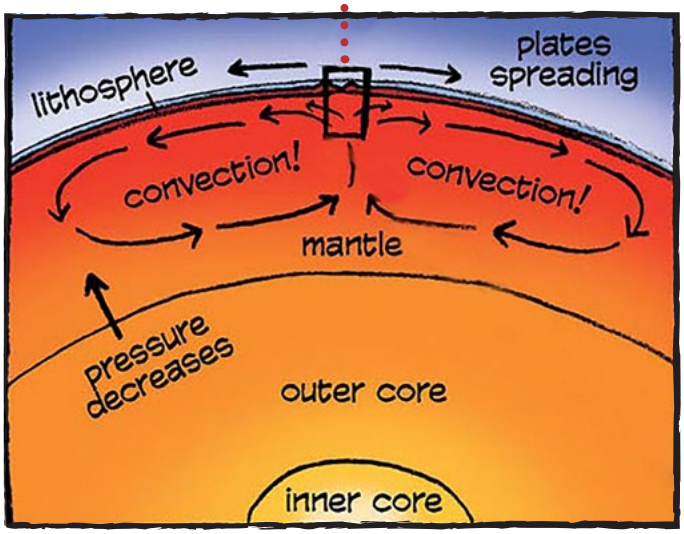
Meghan Jones, WHOI

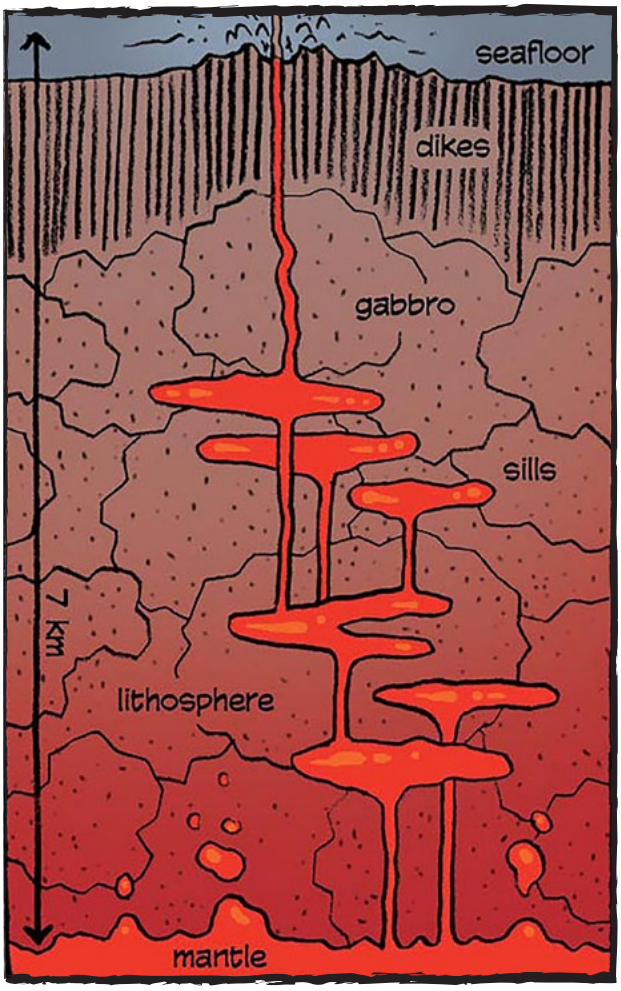
Jones is using X-ray microtomography to examine the internal structure of the rocks and the vesicles inside them. She hopes to learn more about the geological processes that created the rocks. The vesicles also give chemists a rare chance to analyze primordial gases that were trapped in Earth's mantle when our planet was forming.



While scientists in *Alvin** searched for popping rock samples, *Sentry** created highly detailed seafloor maps showing the geological landscape where the rocks were found.

Together, these data offer new clues to unraveling the chemical and geological processes in the mantle that underlie the formation of magma, the spreading apart of Earth's tectonic plates, and the creation of new seafloor crust.





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