

Geo-researchers making diamonds out of odd materials, including peanut butter

11 November 2014, by Bob Yirka



This is a collection of 0.02, 0.03 and 0.04 carat solitaire diamonds weighing in total 5.36 carats. Credit: Swamibu/Wikipedia

(Phys.org) —A team of researchers working in a lab at the Bayerisches Geoinstitut in Germany is seeking to learn the true composition of Earth's interior, BBC Future reports, and they aren't afraid to resort to stunts to further their cause. The team, led by David Robson, is putting various materials into presses while also heating them to hopefully imitate the conditions beneath our feet at various depths.

Robson points out that despite a lot of effort, scientists still don't know the true composition of the Earth's core and its upper and [lower mantle](#). Much more is known, of course, about the uppermost layer, the crust—at least the top portions. Complicating the problem is that evidence thus far indicates that our planet doesn't match the composition of meteorites that have struck the Earth—they seem to have more silicon than does our planet suggesting either that perhaps Earth wasn't formed from them, or that the silicon is too

deep for us to detect.

In his lab, Robson and his colleagues are trying to learn more about the lower mantle and to do that, he's attempting to expose certain [materials](#) to the conditions that are thought to be present, to see if they match readings made from the surface. They have piston based presses that can exert enormous forces on a material, while the material is simultaneously baked by a furnace. Such conditions force the atoms in the material closer together making it denser. The changed material is then removed from the press and crushed to allow for closer inspection. The team runs [sound waves](#) through the material to see if they are impacted in the same ways as sound waves that are sent through the Earth. They report that it appears that silicon is not a material that would make a match—though the changed material, named ringwoodite, is able to hold water, suggesting there may be vast amounts of it beneath us.

The press and furnace are able to make [diamonds](#) as well. When looking into the possibility that carbon dioxide in the mantle was pushed deeper, into mineral rich iron below, the team found that when subjecting similar material to pressure and heat, the oxygen was stripped away leaving just dense carbon—diamond. As a publicity stunt, the team also tried pressing peanut butter, which loosed a lot of hydrogen, but because of its high carbon content, also resulted in the creation of a small diamond.

More information: BBC Future: www.bbc.com/future/story/201411...n-who-makes-diamonds

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