

# Wooly Magma: Layers of learning

NOAA uses Earth kits to share science with children

By Laura Snider

For the Camera

A giant bowl of bouncy balls and a dozen mounds of brightly colored wool strips sat on a table Friday inside the National Oceanic and Atmospheric Administration in Boulder.

The wools were red, gold, pink, turquoise, white and a swirl of blue and green, all specially dyed to represent Earth's layers. The finished product, once the wool is carefully wrapped and felted around the rubber ball layer by layer, is a kid-friendly, tennis ball-sized model of our planet. The project, which aimed to have 4,000 of these educational do-it-yourself kits finished by last week, is affectionately dubbed Wooly Magma.

"OK, we have 1,025 kits finished," a volunteer yelled out.

Cheers went up among the 10 women winding around the tables stacking wool and sticking the strips, along with a ball and an instruction pamphlet, into a gallon Ziploc bag. Nearly all the women were associated in some way with NOAA — from senior scientists to administrative assistants — and they had all volunteered some of their time to help NOAA with a massive outreach campaign to celebrate its 200th birthday.

"I call these my troops," said Annie Reiser, who is heading up the project. "I have about 50 people who have signed up to help when they can."

The finished kits will be sent to NOAA headquarters in Washington, D.C., where they will be packaged with 41 other activities, all designed to educate children about the science that goes on at the different branches of NOAA, from Maryland to the South Pacific. Outreach coordinators for each NOAA branch will be able to decide how to make the best use of the kits in their areas.

Wooly Magma balls illustrate the science of Earth's internal structure. The hard, rubber ball at the center represents the inner core, a solid metallic chunk that is nearly 800 miles



An example of a finished Wooly Magma. The National Oceanic and Atmospheric Administration made kits of the planetary models in celebration of its 200th birthday.

thick. The layers of felt represent the liquid outer core, which is responsible for Earth's magnetic field; the bands of the mantle; the hot, molten magma that makes up nearly two-thirds of the Earth's mass; and the crust, the surface of the Earth, which is relatively thin and fragile compared to the mass of the planet.

The project was dreamed up by Reiser, who does outreach for NOAA, when she was asked to come up with a hands-on activity for a science festival three years ago.

"I said, 'I can either teach German, or do something kind of artsy,'" said Reiser, who used to teach German at the University of Colorado. "I am not a scientist, but I've been in fiber arts for about 30 years."

Children who make Wooly Magma balls will learn about more than Earth science — they'll also learn about how to felt, the process of tightening and matting natural fibers. The mini-Earths have to be rolled, massaged with soap and dipped in both hot and cold water to make the wool shrink around the bouncy ball.

"There's all the dipping and suds," Reiser said. "It's messy — but it's a clean mess."

The Wooly Magma balls are fun for more than just children. The Boulder NOAA community has become more tight-knit as employees from all different departments have come together to make the kits.

"This has been a really fun activity," Reiser said. "Something kind of good for the morale. Like an old-fashioned quilting bee."



Photos by CLIFF GRASSMICK / Daily Camera

Volunteers Susan McLean, left, and Michelle Lang package wool Friday for the National Oceanic and Atmospheric Administration's Wooly Magma kits. NOAA is celebrating its 200th birthday by making 4,000 of the kits, which represent layers of Earth, for schoolchildren.