

By: ~~April 2008~~ Cache, Science News Editor

## Earth: 170 Known Impact Craters

*Many more lie underground and underwater*

Earth, unlike the other rocky planets in the solar system, is extremely geologically active, constantly shifting and remodeling the surface through plate tectonics shifts, volcanic eruptions and erosion, and mountains formation. This basically means that any evidence of old meteorite and asteroid impacts are mostly hidden away under the surface and underwater. Currently, there are 170 known craters all over the Earth according to the University of New Brunswick, that is constantly maintaining and updating its database. "If there was no erosion or tectonic activity, we would look like the moon. The moon is just pockmarked with impact craters," said Lucy Thompson, geologist at the University of New Brunswick. **Baffling diversity** It is widely believed that, early in the life of the solar system, Earth might have been frequently bombarded by space rocks. Fortunately, the frequency at which space rocks hit our planet today has decreased to only a few impacts once every few thousand years or so. The latest and one of the greatest such impacts took place only 50,000 years ago in Arizona, and formed the now famous Meteor Crater, measuring about 1.2 kilometers in diameter. "That's a nice, simple bowl-shaped crater," Thompson said. Manicouagan crater in Quebec, on the other hand, is about one thousand times larger than Meteor Crater and formed about 200 million years ago. This is an example of one of the most complex existing craters and has special value for the scientists studying geology. "With large impacts, you have complex craters forming, and instead of having a nice bowl shape, you get a central uplift. It's like if you drop something in water, you get rings forming, but the middle comes back up," said Thompson. **Big old craters** The largest known crater on the surface of the Earth is the Vredefort crater in South Africa, and measures 300 kilometers in diameter. According to geologists, Vredefort is about 2 billion years old, thus it is the oldest known crater. Similarly large craters have been found in Ontario, Canada - the Sudbury Basin, measuring 250 kilometers in diameter - and in the Yucatan Peninsula - the Chicxulub crater, 180 kilometers in diameter. It has been proposed that the asteroid which produced the Chicxulub crater might have been responsible for the extinction of the dinosaurs on Earth 65 million years ago, along with more than 90 percent of the living species on our planet. If Earth had such an active geology, the surface may probably be littered with countless thousands of craters, which are still lying under the surface and on the seafloor but haven't been found yet.