



News Archive 2009

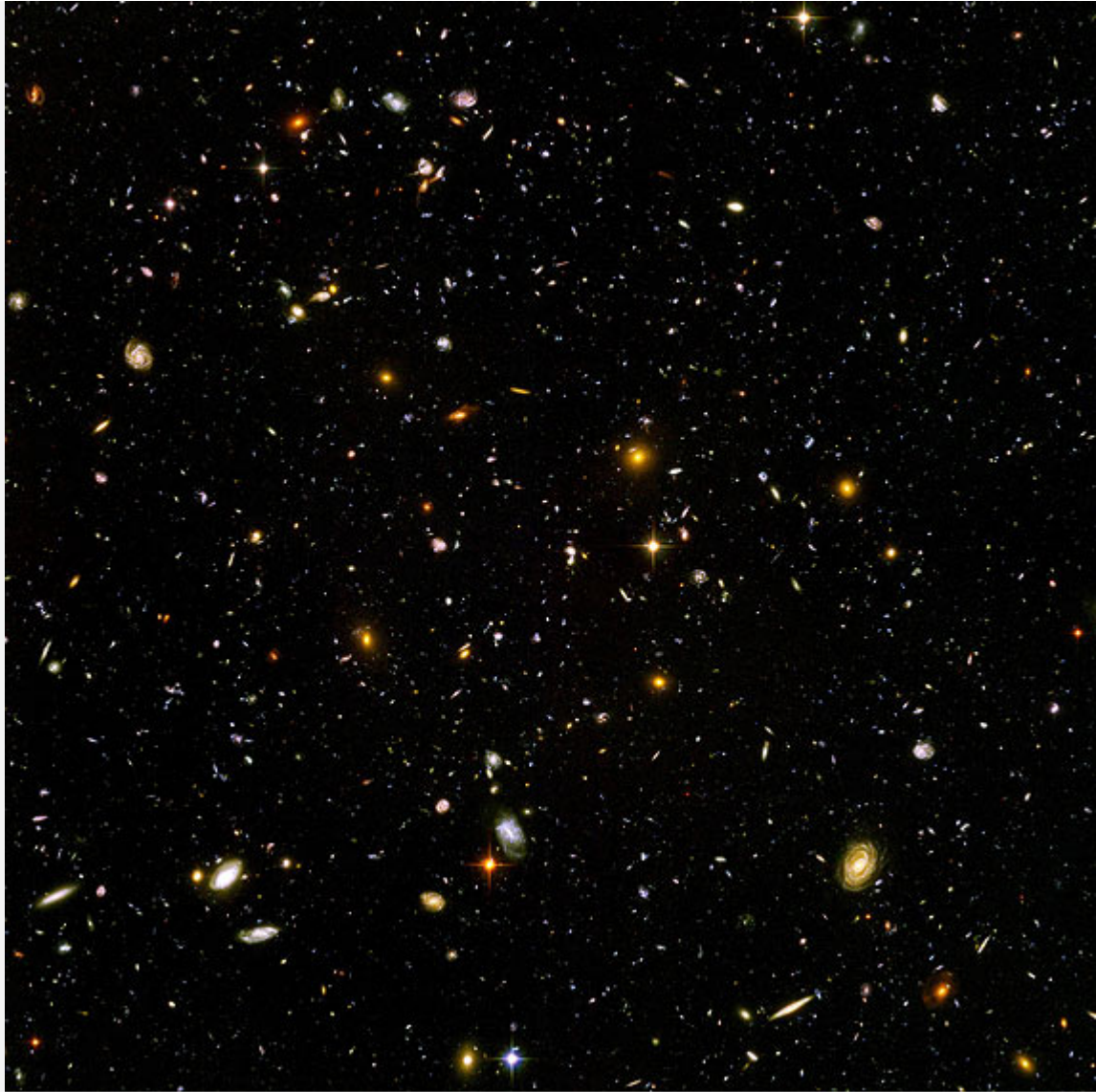
Is there a photograph of the universe?

Week 48

If the question means "Has anyone stepped outside of the universe with a camera and taken a picture of it?" then the answer is, of course, no. The concept of 'universe' means the totality of all things, including space and time. So logically, there can be no 'outside' to the universe. (Although speculative cosmological theories propose other concepts.)

One of the most famous scientific images

One – very abstract – representation of the universe is the map of the cosmic background radiation (see the astronomy question from week 10: Where is the coldest place in the universe?). A more graphic image is the picture of a small region of the sky taken by the Hubble Space Telescope: the Hubble Ultra Deep Field (HUDF). The HUDF is composed of 800 individual frames, acquired by the Hubble Space Telescope between 3 September 2003 and 16 January 2004.



The Hubble Ultra Deep Field – a small section of the sky is made enormous

The region of space observed by the Hubble in the HUDF is very small – about as much of the sky as would be visible through a two and a half meter long drinking straw. But the HUDF is by far the most detailed astronomical image ever created. It shows the most distant structures and gives the deepest view of the visible universe that has so far been obtained. The HUDF gives an idea of the size of the universe. It zooms in on an apparently uninteresting area of the sky and, where other telescopes would have shown us at most a couple of stars, it shows almost 10,000 galaxies. Astronomers have found among them the darkest and most distant galaxies so far discovered – light from these objects takes over 13 billion years to reach Earth (and hence the lens of the Hubble).

Related Contacts

Henning Krause

German Aerospace Center
Corporate Communications
Tel: +49 2203 601-2502
Fax: +49 2203 601-3249
E-Mail: henning.krause@dlr.de

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