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Google Sky puts on a great show

Software tool great for the public; not perfect for amateur astronomers.

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The people at Google, who enabled us to look at our house from space, have now made it possible to look at space from our house. Google Sky, made available free online on Tuesday (downloads at http://earth.google.com), allows users to scan images of the entire night sky — including real images of stars, nebulae and galaxies — and to zoom in for up-close snaps.

"It's a great idea. It's going to be very successful, especially with the general public and schools," says Francisco Diego, an astronomer at University College London, UK, who is involved in science outreach.

But for astronomers, even of the backyard variety, he notes, it's not the ideal tool. "Amateur astronomers would be better off with something like Stellarium or Starry Night — you can see the sky above your head at any time, which Google Sky doesn't do," says Diego. Those tools are already used to run planetarium shows, and as educational tools in classrooms. "Of course, we in astronomy use more specialized software that are far superior, but that's not the point. It's just a great tool to explore and to zoom in and out with."

NASA, ESA, Digitized Sky Survey Consortium, STScI-Google Partnership

"People in the blogosphere are complaining because it doesn't do this and it doesn't do that. It has a lot of bugs," Diego adds. Some nebulae are listed as globular clusters, for example. "There are factual errors about astronomical objects — they should have been corrected before launch. But they will be fixed," he says.
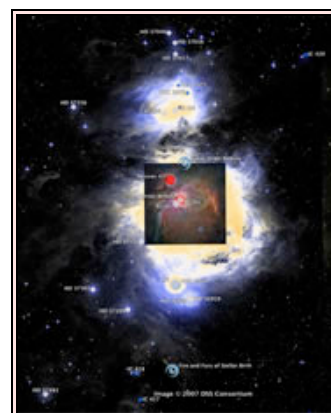
Reach for the stars

Objects can be searched for using their common names (for example, the Whirlpool Galaxy), or by catalogue name (M51 or NGC 5194). A search for the giant globular cluster Omega Centauri, for example, showcases nicely the software's ability to zoom in, with an image taken by the Hubble Space Telescope eventually popping up. Double clicking on objects can trigger pop-up windows with additional details and links (usually to Wikipedia).

Not all of the stars ever seen and named in the Universe are searchable, but the brightest and most famous ones are.

Users keen for the best views might be interested in searching for the Hubble Ultra Deep Field, a tiny section of sky in which the most distant and youngest galaxies have been imaged by the Hubble Space Telescope.

For more suggestions of search terms, see Star search, which will take you on a tour of some

famous astronomical features, and link you to *Nature* stories about them.

Mosaic map

The main map for Google Sky is derived from digital versions of sky surveys conducted at the California Institute of Technology's Palomar Observatory in the Northern Hemisphere, and the Anglo-Australian Observatory in the Southern Hemisphere, as supplied by the Science and Technology Facilities Council in Edinburgh, UK. It's also enhanced by images from the Hubble Space Telescope in both hemispheres.

This synergy sometimes gives Google Sky a kind of patchwork appearance — just as Google Earth presents parts of Earth in different resolutions, depending on available images. But it also provides an integrated picture of the sky as a whole three-dimensional sphere, in a much easier-to-use format than most of the sky maps available to the public today.

Additional layers of information can be added or subtracted by users at will, including outlines of the constellations, place marks for popular objects sought out by backyard astronomers with binoculars, and the movement of planets in our Solar System. Users can add their own layers of information to the system, too — such as the cosmic microwave background.

"Information technology is revolutionizing not just science, but also education and public outreach," say's George Djorgovski, an astronomer at the California Institute of Technology in Pasadena and principal investigator of the Digital Palomar Observatory Sky Survey. "I'm sure that we will see some wonderful applications added as layers atop Google Sky."

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