Milky Way photo with 46 billion pixels is the largest astronomical image of all time

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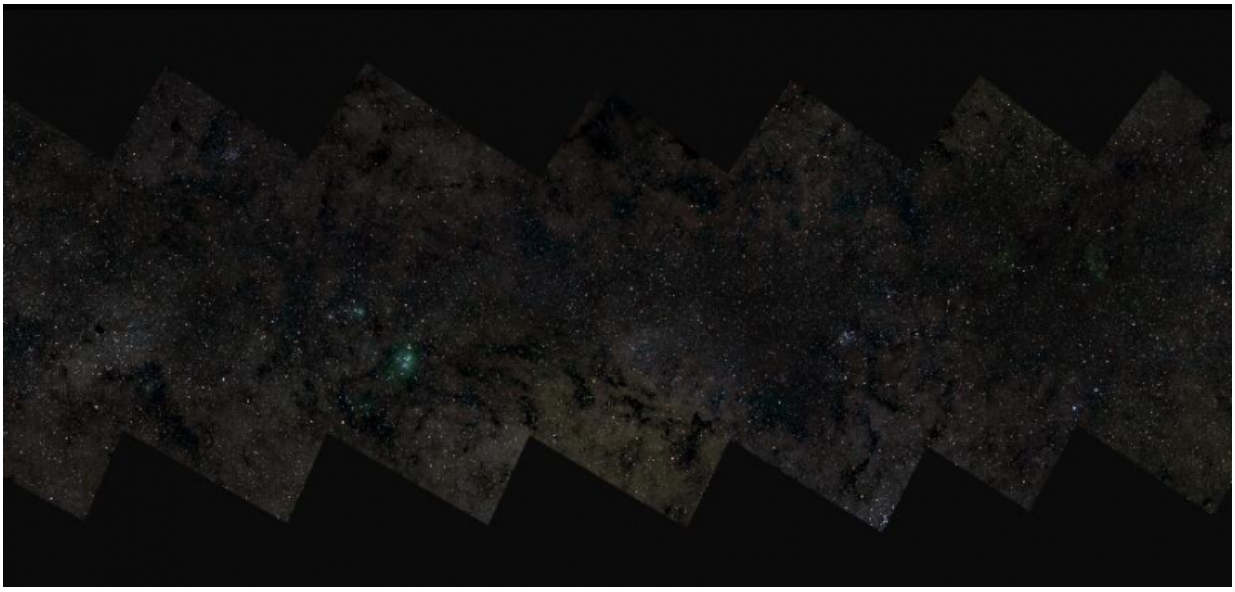

Astronomers at the Ruhr-Universität Bochum have compiled the largest astronomical image to date. The picture of the Milky Way contains 46 billion pixels. In order to view it, researchers headed by Prof Dr Rolf Chini from the Chair of Astrophysics have provided an online tool (http://gds.astro.rub.de/). The image contains data gathered in astronomical observations over a period of five years.

Five-year observation period at the university observatory

For five years, the astronomers from Bochum have been monitoring our Galaxy in the search of objects with variable brightness. Those objects may, for example, include stars in front of which a planet is passing, or multiple systems where stars orbit each other and which obscure each other every now and then. In his PhD thesis, Moritz Hackstein is compiling a catalogue of such variable objects of medium brightness. For this purpose, the team from the Chair of Astrophysics takes pictures of the southern sky night after night. To this end, they use the telescopes at Bochum's university observatory in the Atacama Desert in Chile. More than 50,000 new variable objects, which had hitherto not been recorded in databanks, have been discovered by the researchers so far.

268 individual images make up the photo of the Milky Way

The area that the astronomers observe is so large that they have to subdivide it into 268 sections. They photograph each section in intervals of several days. By comparing the images, they are able to identify the variable objects. The team has assembled the individual images of the 268 sections into one comprehensive image. Following a calculation period of several weeks, they created a 194 Gigabyte file, into which images taken with different filters have been entered.

Online tool facilitates search for individual celestial objects

Using the online tool, any interested person can view the complete ribbon of the Milky Way at a glance, or zoom in and inspect specific

areas. An input window, which provides the position of the displayed image section, can be used to search for specific objects. If the user types in "Eta Carinae", for example, the tool moves to the respective star; the search term "M8" leads to the lagoon nebula.

More information: M. Hackstein et al. The Bochum Survey of the Southern Galactic Disk: II. Follow-up measurements and multi-filter photometry for 1323 square degrees monitored in 2010 - 2015, *Astronomische Nachrichten* (2015). DOI: 10.1002/asna.201512195 M.

Haas et al. The Bochum survey of the southern Galactic disk: I. Survey design and first results on 50 square degrees monitored in 2011, *Astronomische Nachrichten* (2012). DOI: 10.1002/asna.201211717

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