In the news

A NEW BEGINNING

Credit: Reidar Hahn, Fermilab

In January, the Dark Energy Survey (DES) completed its 6-year-mission to map more than 300 million distant galaxies; however, an equally arduous task — analysing the acquired 50 terabytes of data with a view to understanding the expansion of the Universe — is just beginning.

DES is an international collaboration whose mission is to map a region of the southern sky and catalogue distant galaxies, the end goal being to understand the force behind the accelerating expansion of the Universe: dark energy. DES is one of the most sensitive and comprehensive surveys yet, thanks to the Dark Energy Camera mounted on the 4-metre Blanco telescope at the Cerro Tololo Inter-American Observatory in Chile (pictured). The instrument can capture light from distant galaxies with unprecedented quality.

DES published its first major public release (Data Release 1) over a year ago. The survey has already produced a wealth of results, such as the most accurate dark matter map of the universe, the discoveries of the most distant known supernova and more dwarf satellite galaxies of the Milky Way, cosmological parameter constraints using measurements of type Ia supernovae and the observation of the visible counterpart of a neutron star merger.

Now that the survey has ended there is still a long path ahead: from raw data to science data and on to science results. Richard Kron, a Fermilab and University of Chicago scientist and DES director estimates that it will take more than half a year before the data products needed to do the science are ready for the DES collaboration. “Experience tells us that it takes 1–2 years to go from the data products to the final results. My rough guess for the publication of cosmology constraints is early 2021,” says Kron. A public Data Release 2 may be available as soon as August 2020. “The database will be mined for many years for both cosmology and for other astrophysics, but the DES analysis itself should be winding down about the time that the Large Synoptic Survey Telescope (LSST) is starting up,” Kron adds.

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