



BECOME A MEMBER OF THE PS1 SCIENCE CONSORTIUM

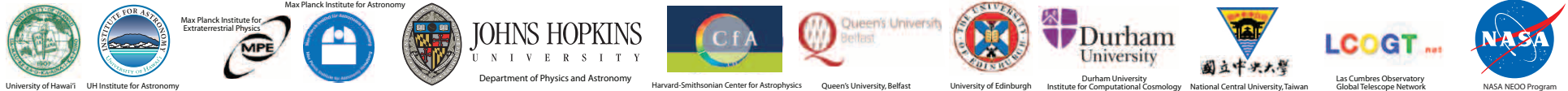


The PS1 Surveys

All the science programs use data from one or more of the following surveys, which are interlaced with each other:

- **The 3π Steradian Survey** covers the entire sky north of declination -30° with a total of 60 epochs, twelve each in 5 filters (g, r, i, y, z)
- **The Medium Deep Survey** comprises ten fields spread across the sky that are observed nightly with longer exposures
- **The Solar System Sweet Spot Survey** will concentrate on those ecliptic directions where detection of NEOs is most likely
- **Stellar Transit Survey** will search for Jupiter-like planets in close orbit around distant stars
- **Deep Survey of M31** will study micro lensing and variability in the Andromeda Galaxy as well as a deep static image for study

Science Consortium Members



The PS1 System

The PS1 System is much more than a wide field telescope and the world's largest digital camera. It is an integrated system that includes a sophisticated data reduction pipeline, a hierarchical database, and science servers that generate specialized data products.

The research program underway by the PS1 Science Consortium covers almost every branch of astronomy. **The entire sky is being mapped 60 times over a 3 year period.**

- **PS1 Telescope:** A 1.8 meter telescope with a 3.2 degree diameter field of view
- **1.4 Gigapixel Camera:** the largest digital camera in the world
- **OTIS:** (Observatory, Telescope, Instrument, Software) is the system for controlling the Observatory remotely from the PS1 Remote Operations Center at the IfA's Advanced Technology Research Center in Pukalani Maui
- **IPP:** (Image Processing Pipeline) takes more than 3 Terabytes of nightly data and calibrates it, astrometrically registers it, makes difference images to determine changes, and determines attributes of objects in the images
- **PSPS:** (Published Science Products System) is the hierarchical relational database that makes the catalogs from the IPP and Science Servers available for searching and complex queries

In addition to the above systems that generate the basic data products there are Science Servers (data analysis systems that generate derived data products) e.g., photometric redshifts (Photo-classification Server), orbits of moving objects (Moving Object Processing System or MOPS), timely alerts of transient phenomena (Transient Science Server).



Photos by R. David Beales, UH Creative Services, www.hawaii.edu/offices/eur/creative.html

Key Science Projects

- Populations of objects in the Inner Solar System
- Populations of objects in the Outer Solar System
- Low-Mass Stars, Brown Dwarfs, and Young Stellar Objects
- Search for Exo-Planets by dedicated Stellar Transit Surveys
- Structure of the Milky Way and the Local Group
- A Dedicated Deep Survey of M31
- Massive Stars and supernova progenitors
- Cosmological Investigations with Variables and Explosive Transients
- Galaxy Properties
- Active Galactic Nuclei and High Redshift Quasars
- Cosmological Lensing
- Large Scale Structure

PS1 Status January 2011

PS1 has mapped the entire sky north of declination -30° with 2 to 4 images in the z and y bands. The same will be completed in $g, r,$ and i bands by February 2011. We will be re-reducing this data from 2010 with the latest algorithms and combining it with newly acquired data at a rate of 4 images per band through 2011.

PS1 Science Consortium – PS1SC

The Institutions of the PS1 Science Consortium are united through a Memorandum of Agreement to fund the operations of the PS1 System in return for the right to analyze the data for astronomical purposes. Additional operational funding is provided by the NASA NEOO program.

The Consortium is seeking additional members to join in the PS1 Science Mission.



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