Hubble Gets a New Camera and a Boost

New Camera: Seeing More for Less

With its wide field of view, superb image quality, and exquisite sensitivity, Hubble’s newest science instrument, the Advanced Camera for Surveys (ACS) will have 10 times more “discovery power” than the Faint Object Camera (FOC) it replaces. In other words, the ACS will be able to collect 10 times more data than the FOC was capable of gathering.

ACS sees in wavelengths ranging from visible to far ultraviolet. It is actually a team of three different cameras with specialized capabilities: Its high-resolution camera will take very detailed pictures of the inner regions of galaxies and search neighboring stars for planets and planets-to-be. Its “solar blind” camera, which blocks visible light to enhance ultraviolet sensitivity, will study weather on planets in our own solar system, among other things. And its “wide field” camera will help scientists understand how our universe evolved by surveying the nature and distribution of galaxies.

The ACS is the only new instrument being added to the telescope on this mission. After it is installed, the rest of the mission is devoted to bringing an old instrument back to life.

Getting a Lift

If possible, before the last EVA, the shuttle will carry Hubble to a higher altitude.

Although the atmosphere is quite thin at satellite altitudes, it is not a perfect vacuum. Over time, all Low Earth Orbiting (LEO) satellites feel the effects of atmospheric drag and lose altitude. If the altitude is not restored, the satellite will eventually re-enter the Earth’s atmosphere and fall to Earth. Hubble has no on-board propulsion, so the only way to restore lost altitude is by carefully firing the shuttle’s jets, boosting the telescope’s orbit while it is still attached to the shuttle.