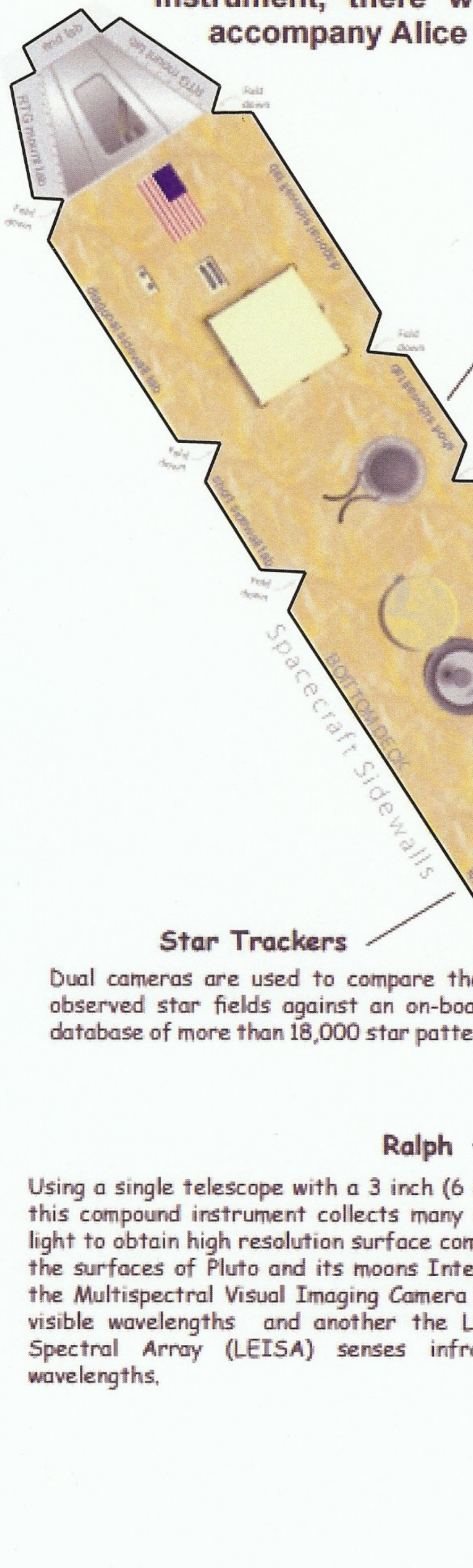
Some of the instrument's names are acronyms made up from longer names, but others are not. In particular the original, longer name of the acronym Alice no longer fits. Likewise when MVIC and LEISA were combined into a new instrument, there was no reasonable acronym, so who better to accompany Alice "to the moon" Charon, than Ralph?



SWAP

The Solar Wind At Pluto instrument will measure charged particles from the solar wind near Pluto to determine whether it has a magnetosphere and how fast its very thin atmosphere is escaping.

LoRRI

Shown with its cover open, the Long Range Reconnaissance Imager is the highest resolution instrument on-board. Its 8.2-inch (20.8 cm) telescope focuses visible light onto a panchromatic 1024 x 1024 pixel charge coupled device (CCD). At Pluto LoRRI will take images able to resolve football-field sized features.

Alice

Alice is an ultraviolet imaging spectrometer that will probe the atmospheric composition of Pluto. A "spectrometer" is an instrument that separates light into its constituent wavelengths, like a prism, only better. An "imaging spectrometer" both separates the different wavelengths of light and produces an image of the target at each wavelength

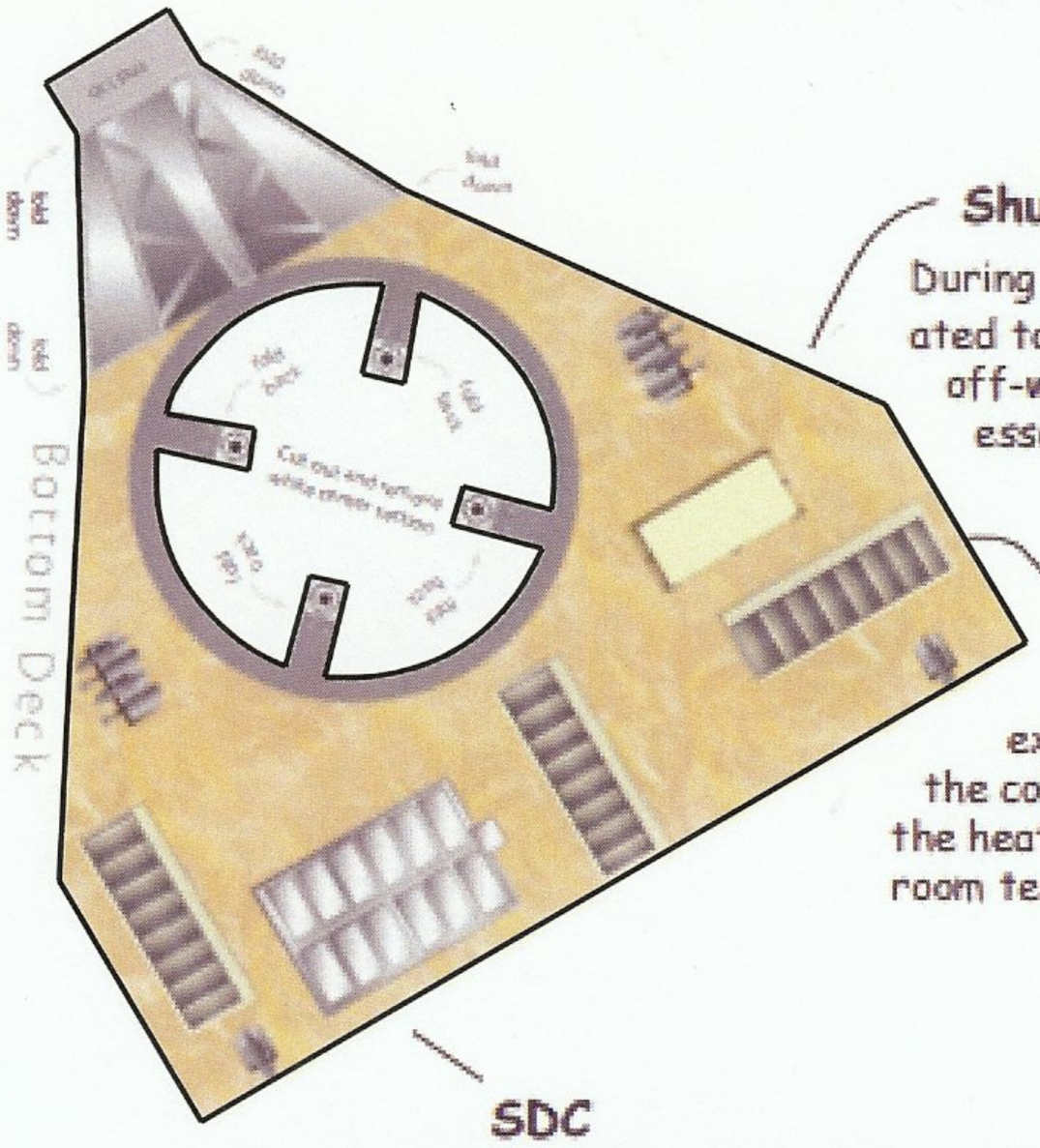
Star Trackers

Dual cameras are used to compare the observed star fields against an on-board database of more than 18,000 star patterns.

Ralph

Using a single telescope with a 3 inch (6 cm) aperture, this compound instrument collects many wavelengths of light to obtain high resolution surface composition maps of the surfaces of Pluto and its moons Internally one section, the Multispectral Visual Imaging Camera (MVIC) operates at visible wavelengths and another the Linear Etalon Imaging Spectral Array (LEISA) senses infrared (heat radiation) wavelengths.

As the New Horizons mission progresses, maintaining the internal temperature is a changing balance between heat production and heat loss. Early in the mission solar heating and excess heat from the RTG power system has to be radiated away. As the spacecraft recedes from the sun and RTG heat production drops, keeping every bit of available heat becomes critical.



Shunt Radiators

During periods of reduced electrical needs excess power is radiated to space as heat. Several of these shunt radiators, painted off-white and located around the outer spacecraft are used to essentially heat deep space.

Louvered Radiators

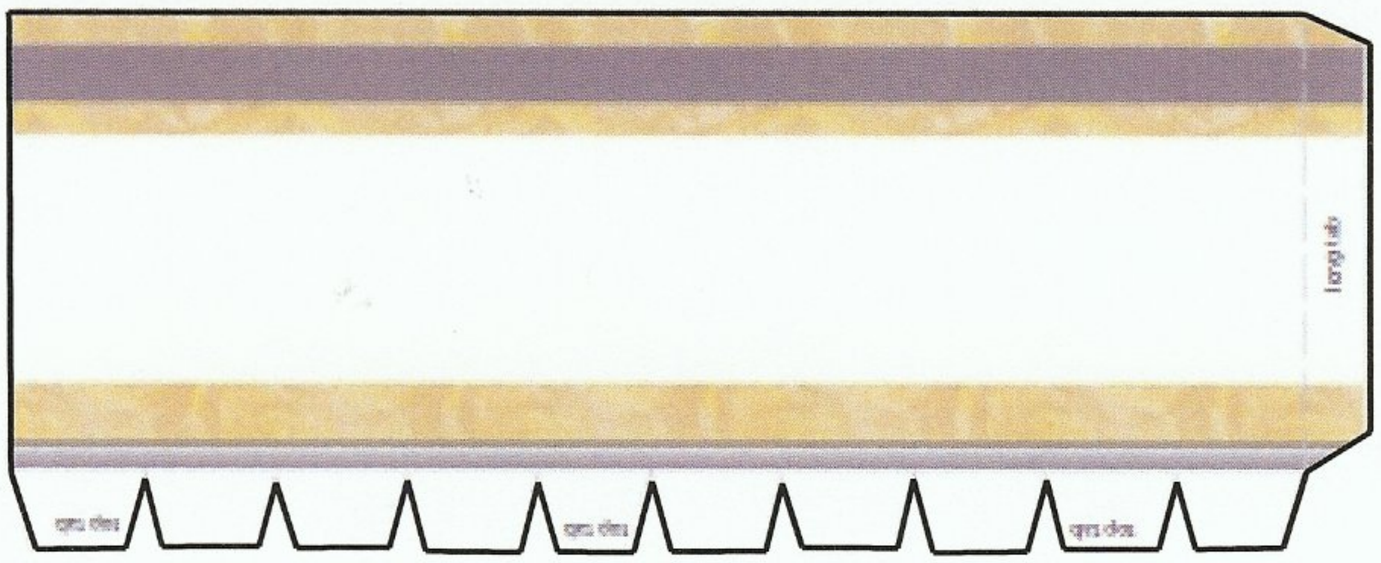
The louvers on these radiators rotate to expose more or less of the underlying surface to the cold of deep space. Using these radiators to control the heat flow the internal temperature is maintained near room temperature.

SDC

The Student Dust Counter, designed, built and operated by students at the University of Colorado, faces in the direction of spacecraft travel so is exposed to dust particle impacts. By studying the distribution of dust left over from the formation of the solar system, we will learn more about the planet formation process.

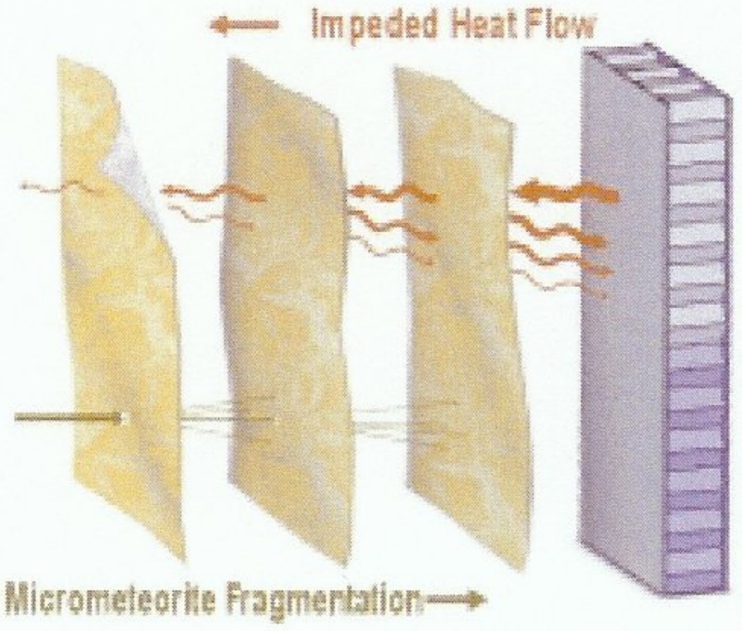
Center Column

The lower edge of the center column mates to the third stage of the New Horizons launch vehicle. It absorbs much of the forces during launch. After third stage burnout, four spring loaded attachment points are released pushing the spacecraft clear of the spent rocket.



Why is it crinkly looking and gold?

To keep heat from escaping to deep space the entire spacecraft is wrapped in Multi-Layer Insulating (MLI) blankets. One side of each mylar layer reflects heat inward and the other resists radiating it outward. The several layers MLI are loosely held ~1.5" (4 cm) apart and off of the spacecraft decks. Once in space the vacuum between the layers prevents heat from conducting between them so the system acts like a thermos bottle inside a thermos bottle.



In addition to thermal control the MLI helps protect the spacecraft from micrometeorites. Incoming particles are shattered and lose energy as they penetrate MLI layers. The large spacing between New Horizons MLI layers serves to disperse the shower of penetrating debris over larger areas at the lower MLI layers, spreading out the impact energies.