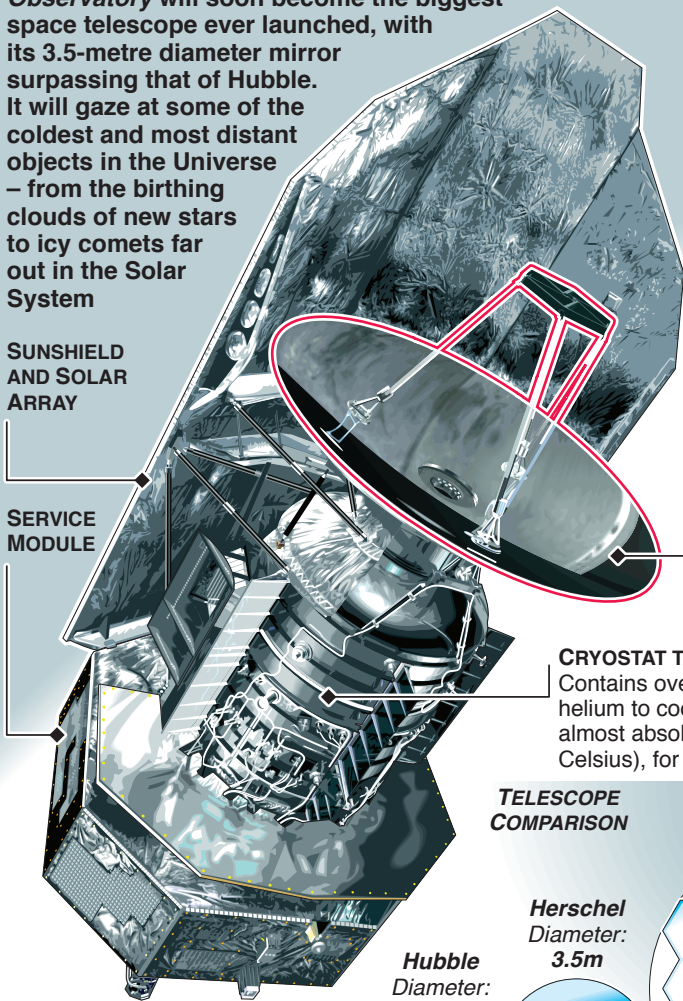


# Largest telescope seeks cold Universe

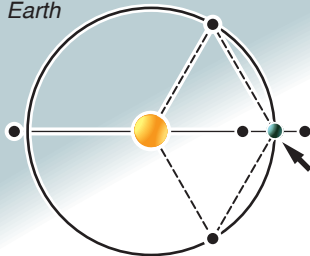
The European Space Agency's *Herschel Space Observatory* will soon become the biggest space telescope ever launched, with its 3.5-metre diameter mirror surpassing that of Hubble. It will gaze at some of the coldest and most distant objects in the Universe – from the birthing clouds of new stars to icy comets far out in the Solar System

SUNSHIELD AND SOLAR ARRAY

SERVICE MODULE



**Orbit:** *Herschel* and *Planck* will orbit **L2** point in Sun-Earth system, located 1.5m km from Earth



**L2:** One of five positions where combined gravitational forces of Sun and Earth allow object to occupy "fixed" position in space

**Launch mass:** 3,300kg

**Height:** 7.5 metres

**Width:** 4 metres

**CERAMIC MIRROR**

Biggest ever made from silicon carbide – very hard but much lighter than glass

**CRYOSTAT TANK**

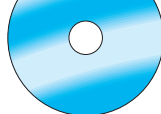
Contains over 2,000 litres of superfluid helium to cool *Herschel*'s instruments to almost absolute zero (-273 degrees Celsius), for maximum sensitivity

**TELESCOPE COMPARISON**

**James Webb**  
Diameter: 6.5m

**Herschel**  
Diameter: 3.5m

**Hubble**  
Diameter: 2.4m



**James Webb**

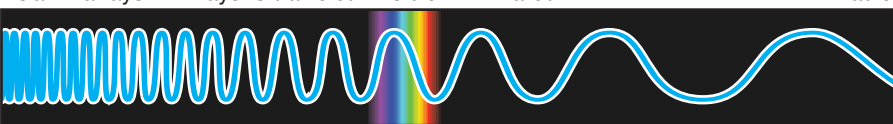
**Herschel**

**Hubble**

**SPECTRAL RANGE**

*Hubble* and planned successor *James Webb* (2013) tuned to view near-infrared wavelengths, but *Herschel* can detect much longer wavelength radiation, in far-infrared and sub-millimetre range

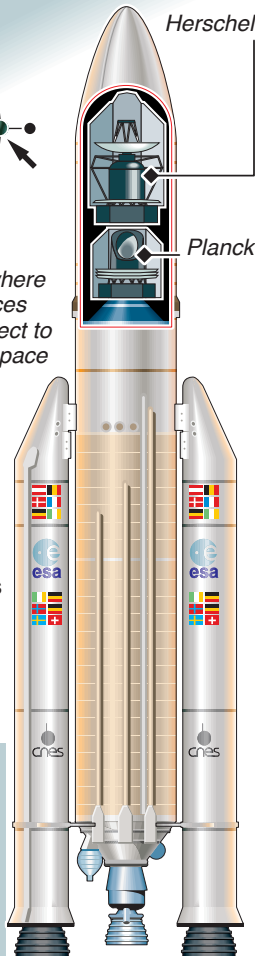
Gamma rays X-Rays Ultraviolet Visible Infrared Microwave Radio



*Herschel* and *Planck* telescopes to be launched together aboard **Ariane 5 ECA** rocket

*Herschel*

*Planck*



**PLANCK TELESCOPE**

Will analyze remnants of radiation that filled Universe immediately after Big Bang, which are observed today as **Cosmic Microwave Background**

Sources: ESA, NASA © GRAPHIC NEWS