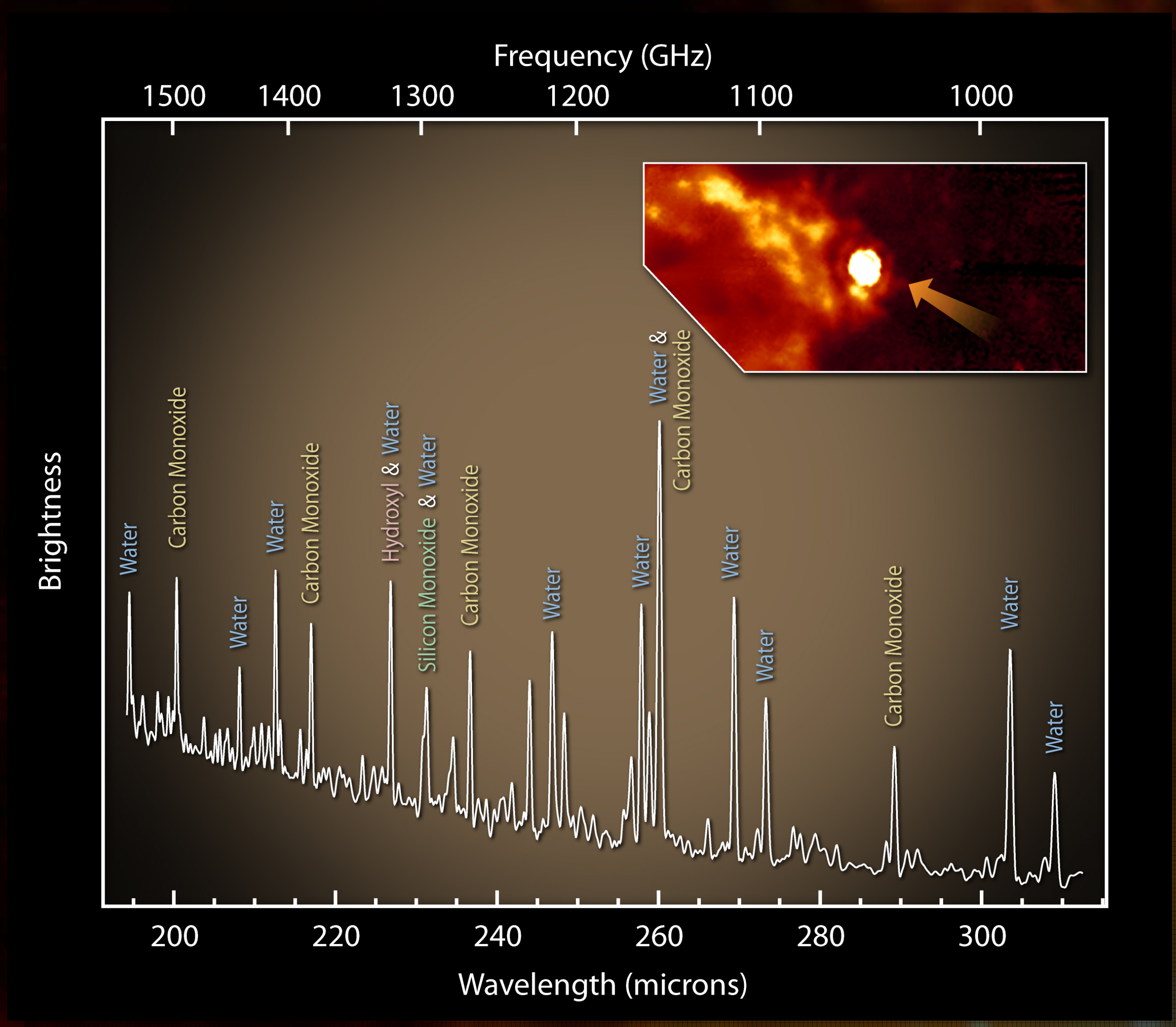
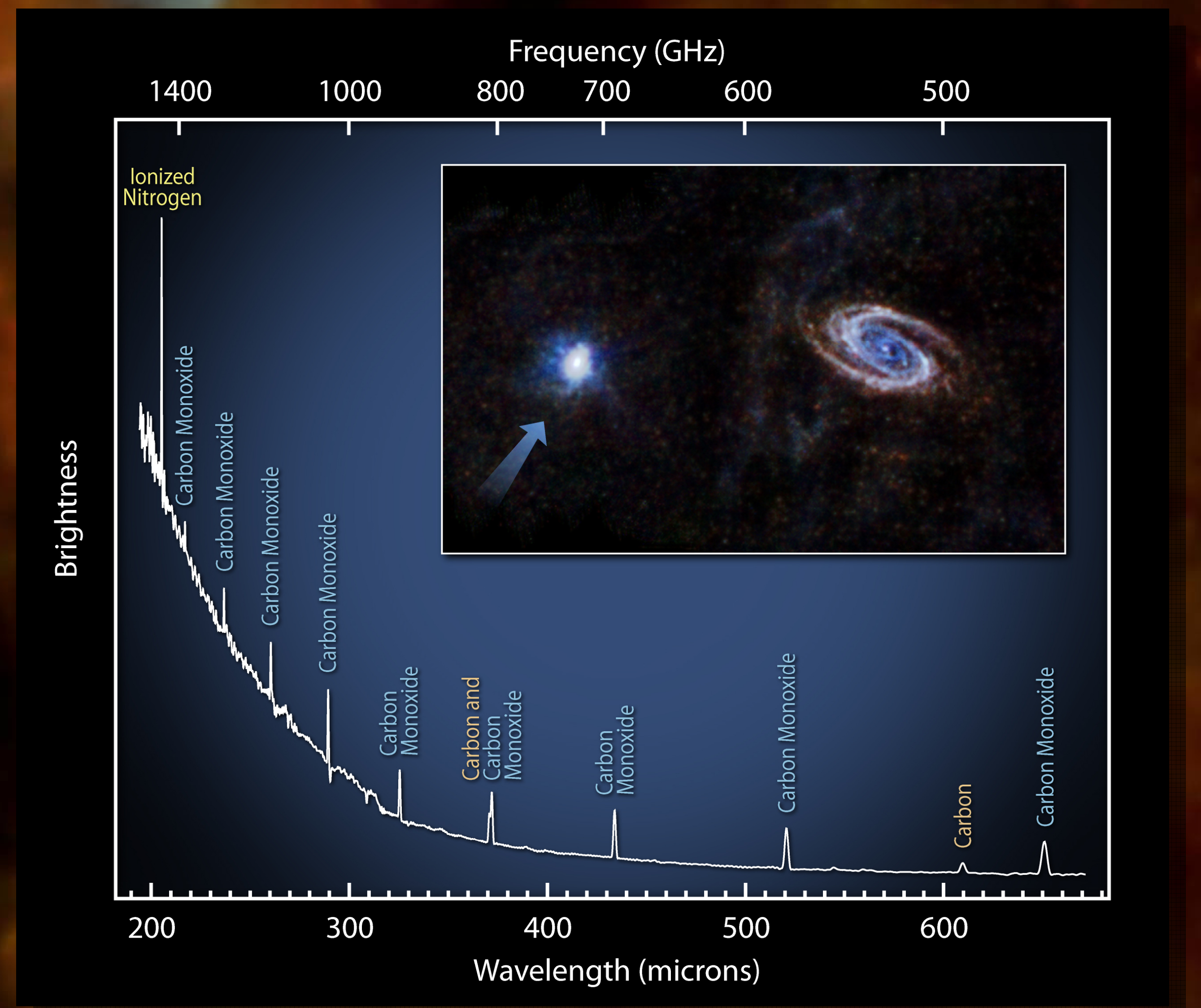


Herschel Space Observatory

Galactic Chemistry

All of Herschel's instruments have the ability to analyse the spectrum of the infrared light, splitting it into a range of wavelengths. Particular chemical elements and molecules emit light at specific wavelengths, producing a series of spikes in the spectrum called "emission lines".

For example, a very active nearby galaxy called "Messier 82" (right) contains carbon, carbon monoxide and water.



The massive star VY Canis Majoris (left) is ejecting its outer layers into space. These layers contain water, carbon and carbon monoxide.

The star is hundreds of times the size of our Sun and will eventually explode, distributing this gas and dust throughout the surrounding regions and seeding new generations of stars.

A region of the Orion Nebula (right), where stars are currently forming, has been found to contain many different molecules, such as carbon monoxide and methylidyne.

The complex molecules found in such regions will likely end up in the planetary systems of new stars, and are thought to be one of the requirements for the emergence of life.

