# Beyond the Milky Way

Outside of our Galaxy, Gaia will observe individual very bright stars in nearby galaxies as well as the farthest and oldest known objects: quasars and primordial galaxies.
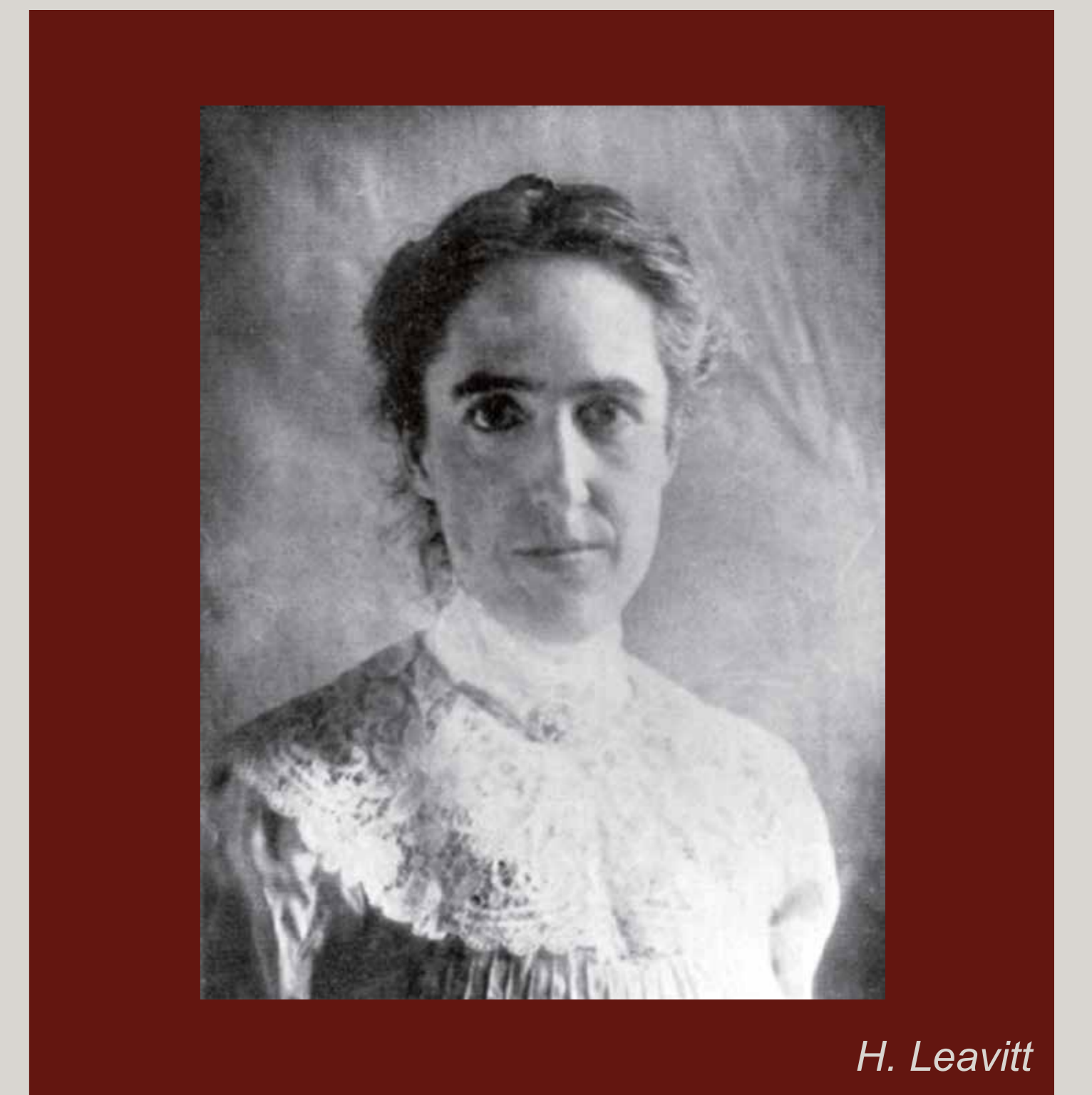

*Andromeda galaxy (Jason Ware)*

## Cepheids and the distance scale

Cepheid stars are a special type of variable stars from which we can indirectly infer the distance to other galaxies. Gaia can observe a large number of them allowing us to calibrate the distance scale of the universe.
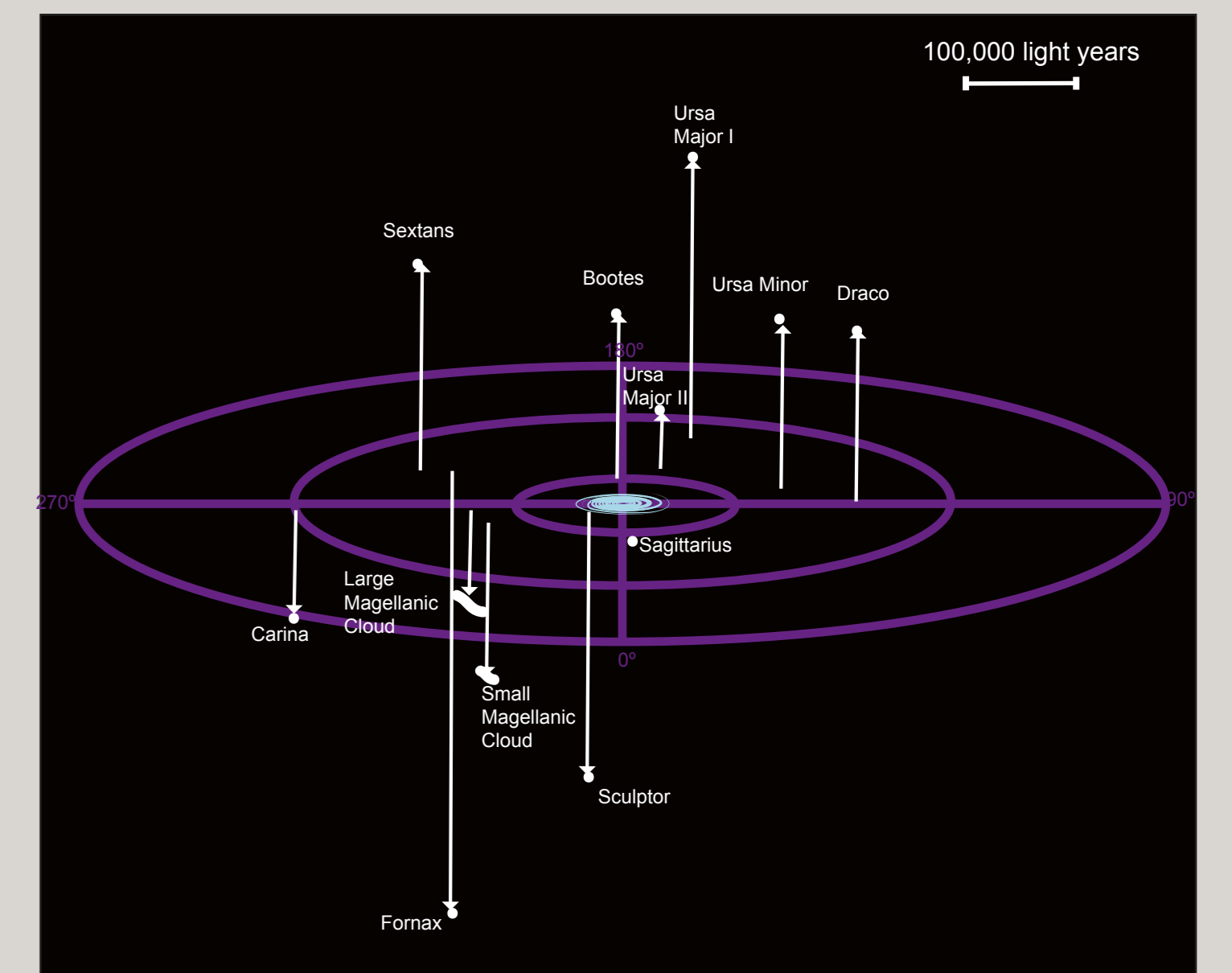
The Cepheid method was discovered by H. Leavitt in 1912.


*H. Leavitt*

## Satellite galaxies

At the beginning of 2013 we knew about 15 satellite galaxies orbiting our Galaxy. Gaia can discover many more.



## Andromeda and the Magellanic clouds

Gaia can determine the distances to our neighbouring galaxy Andromeda and to the Magellanic clouds (satellite galaxies) as well as their distribution of dark matter.
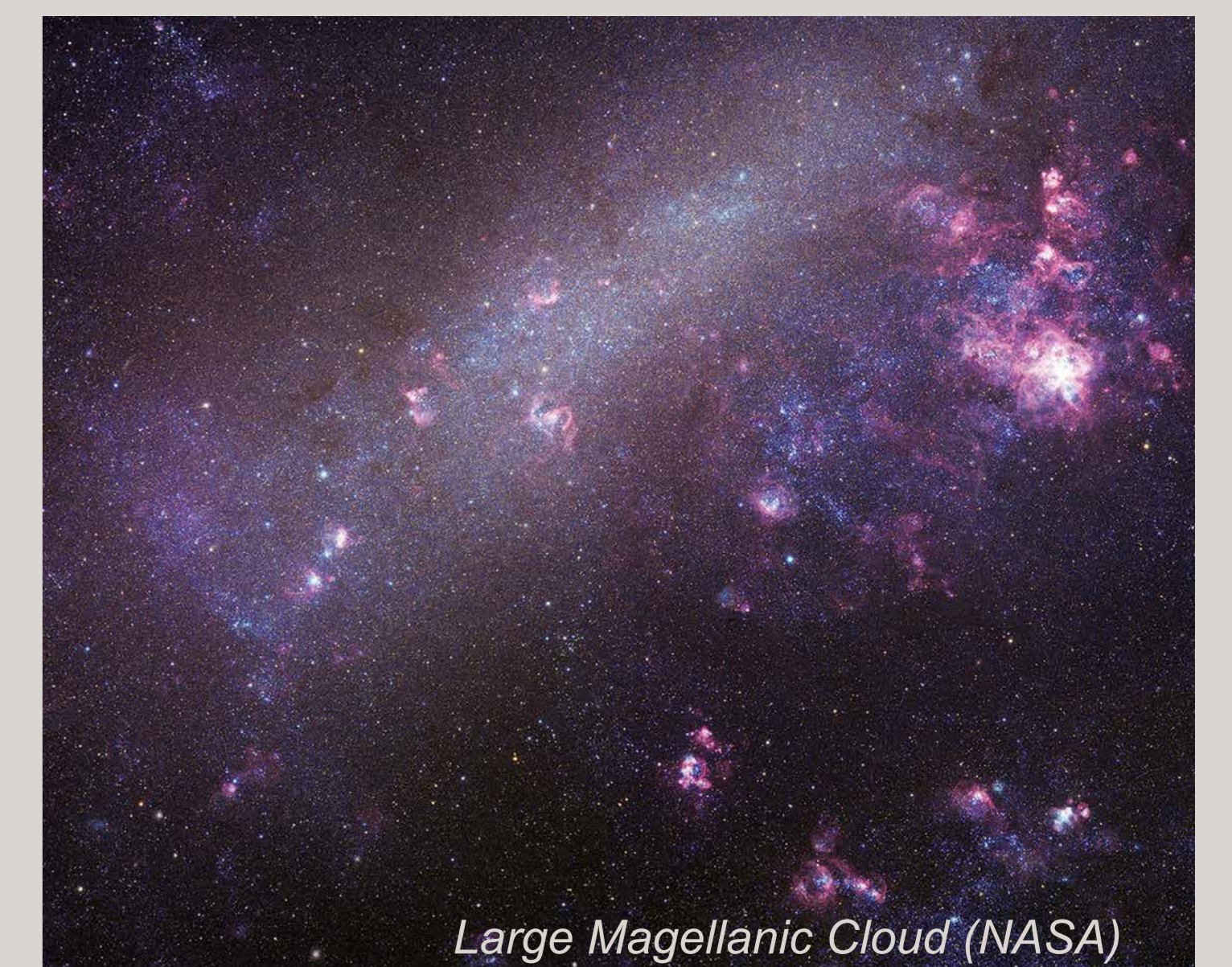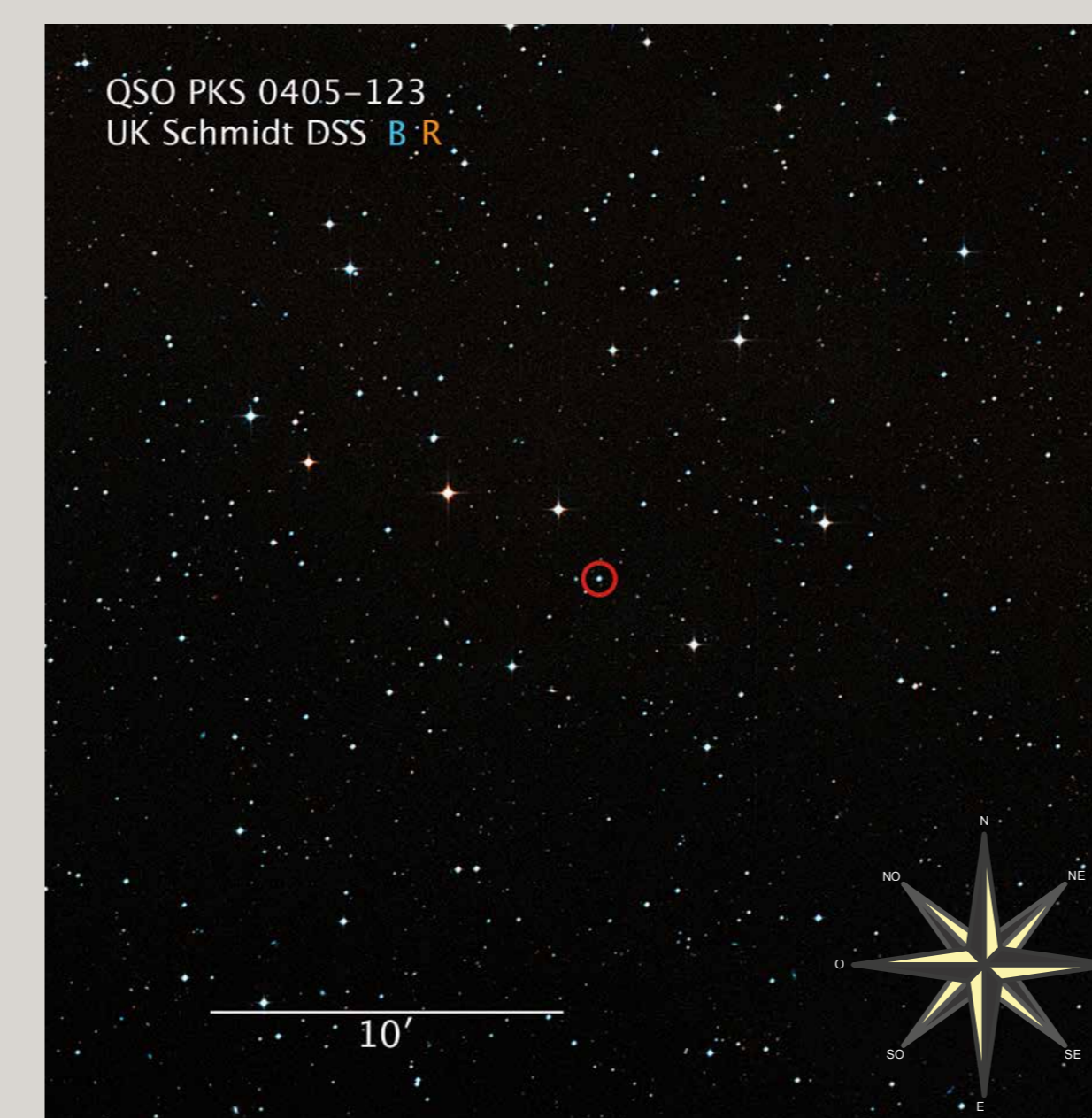

*Large Magellanic Cloud (NASA)*

## Deep space

At the edge of the observable universe we can see the galaxies in their first evolutionary stages. Some of them contain very bright objects at their core called quasars.
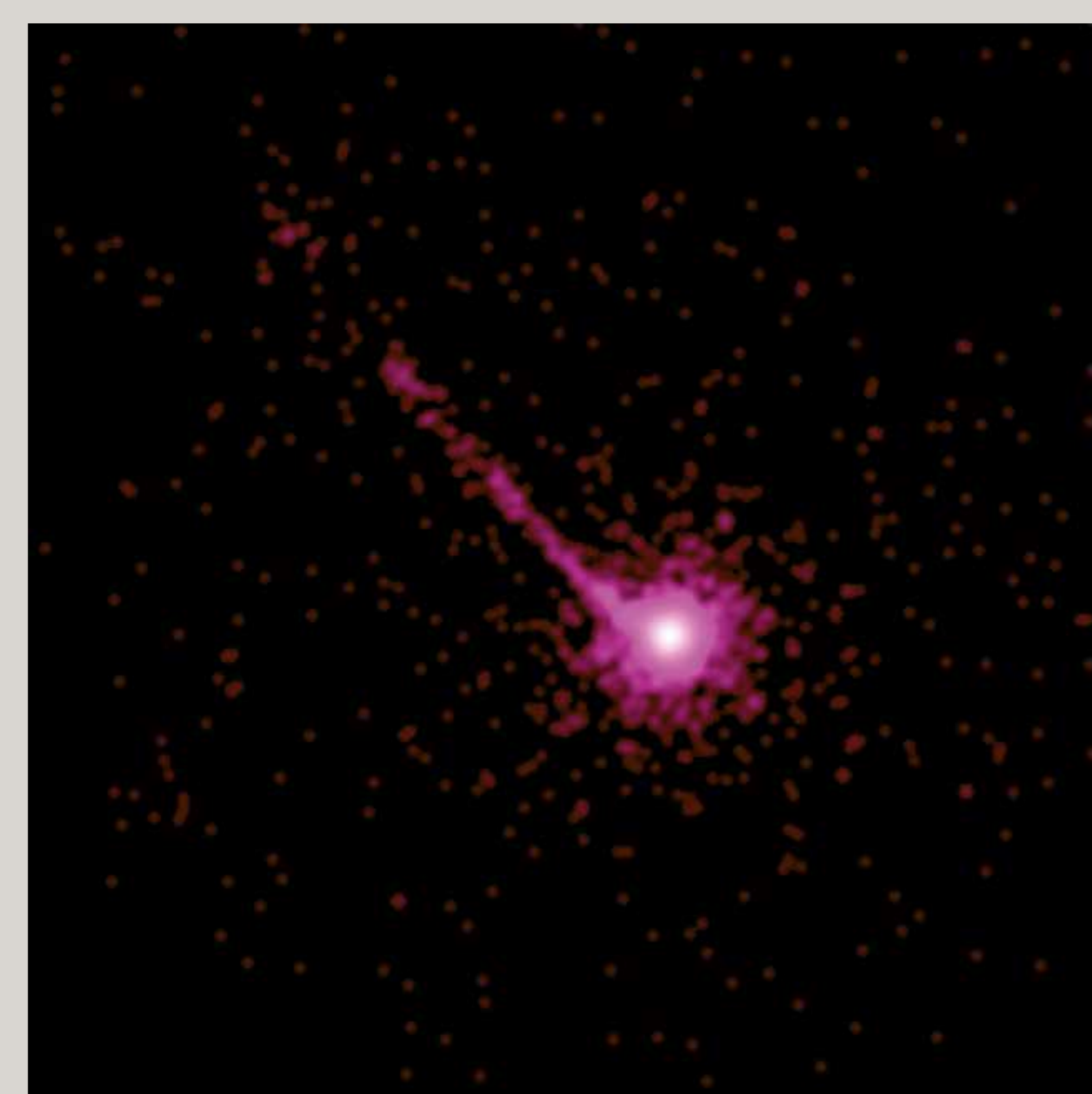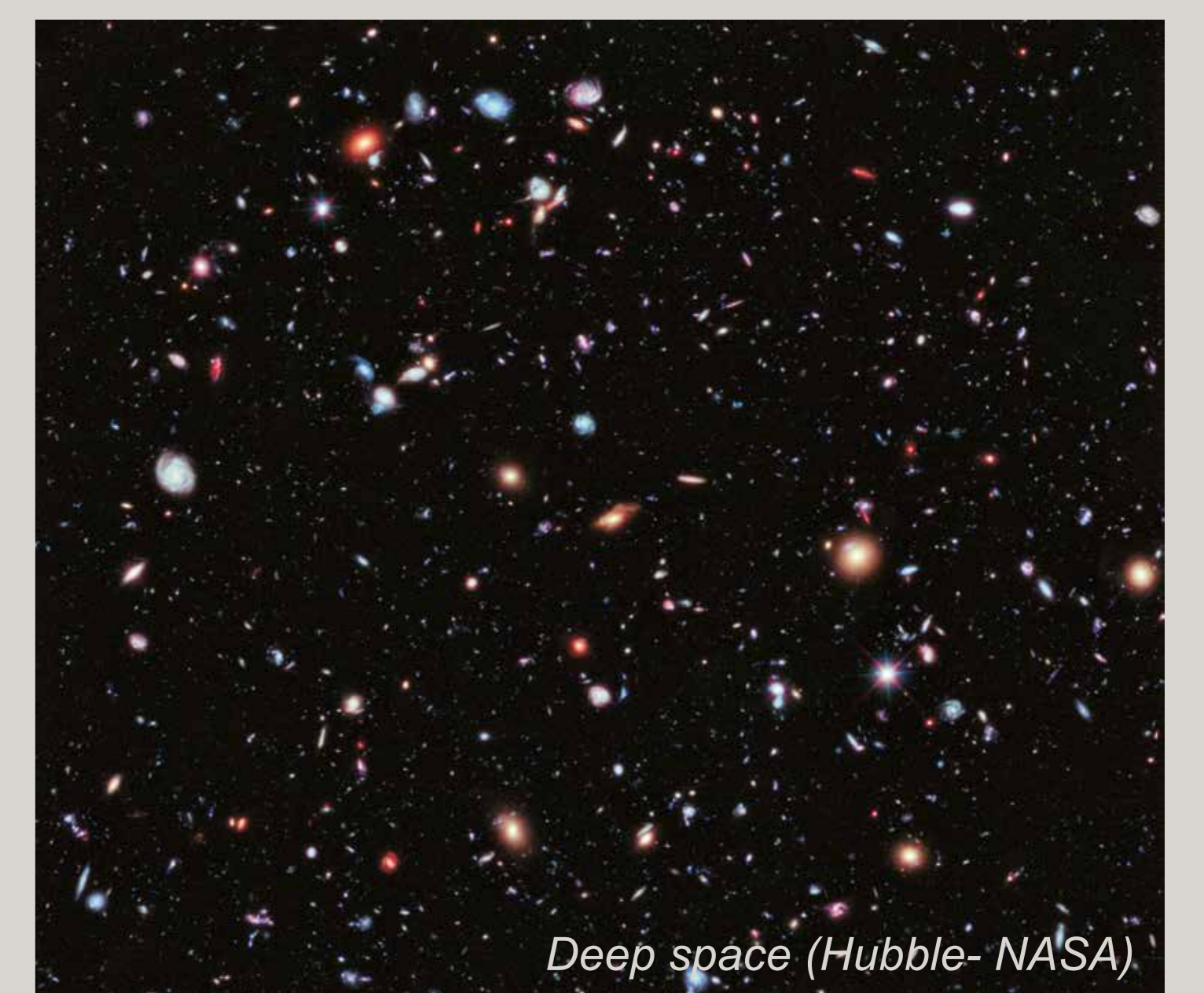


Gaia uses these remote objects, which appear to us as fixed points, as a reference to detect the motions of closer objects.



## Distant galaxies

Gaia can also provide information about the general characteristics of galaxies which are too remote to resolve their stars.


*Deep space (Hubble- NASA)*