



## The orbit around L2

L2 is an equilibrium point of the Sun-Earth system. As with the space observatories Herschel and Planck, Gaia will move on a special orbit around the L2 point.



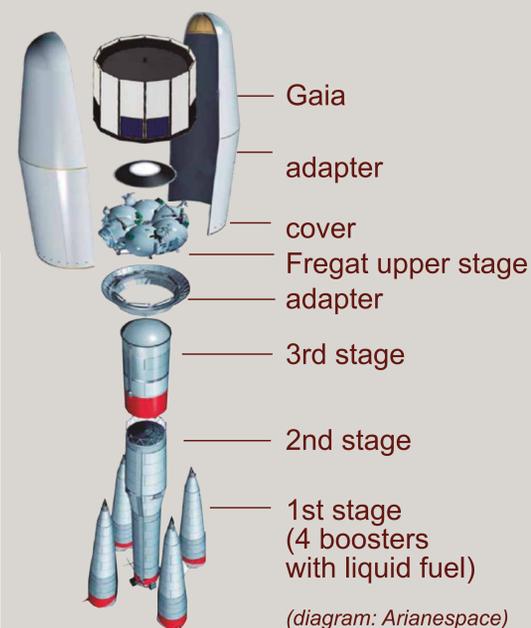
# The Launch of Gaia

Gaia started its mission on board of a Soyuz-Fregat launcher from a launch pad of the European spaceport near Kourou in French Guiana.

Approximately thirty days later Gaia has been inserted into a special orbit around the Lagrange point L2 of the Sun-Earth system. The L2 point is located at a distance of 1.5 million kilometres from the Earth.

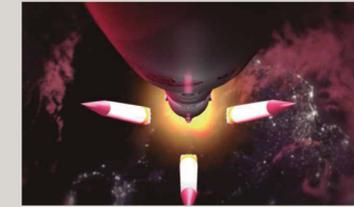
## The Soyuz-Fregat launcher

Length	46,2 m
Max. diameter	10,3 m
Mass	308 t (including 280t of fuel)
Fuel	Kerosene, liquid oxygen
Stages	3 stages + restartable Fregat upper stage



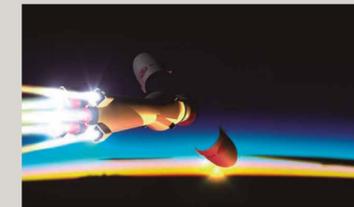
### $t_0$ = time of launch

Engines of 1st and 2nd stages are started. The rocket lifts off.



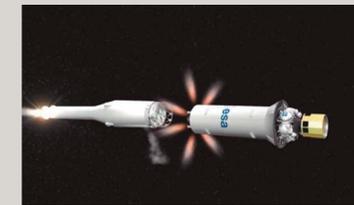
### $t_0 + 118$ seconds

The four engines of the 1st stage are shut down and separated from the launcher.



### $t_0 + 208$ seconds

The rocket has reached sufficient altitude so that the cover can be blasted away.



### $t_0 + 288$ seconds

The engines of the 3rd stage are started. This leads to the separation of the 3rd from the 2nd stage.



### $t_0 + 562$ seconds

The 3rd stage is separated. The Fregat upper stage is then ignited to lift Gaia into a parking orbit around the Earth. Shortly afterwards the Fregat stage is ignited again to leave the orbit in the direction of L2.



### $t_0 + 42$ minutes

After reaching the orbit towards the Lagrange point L2, the Fregat upper stage will be separated from Gaia.



### $t_0 + 64$ minutes

During the flight to L2 Gaia opens its sunshield of 11 m diameter to protect its sensitive instruments from solar radiation.

Start of a Soyuz-Fregat launcher at 12th October 2012 (ESA-S.Corvaja)