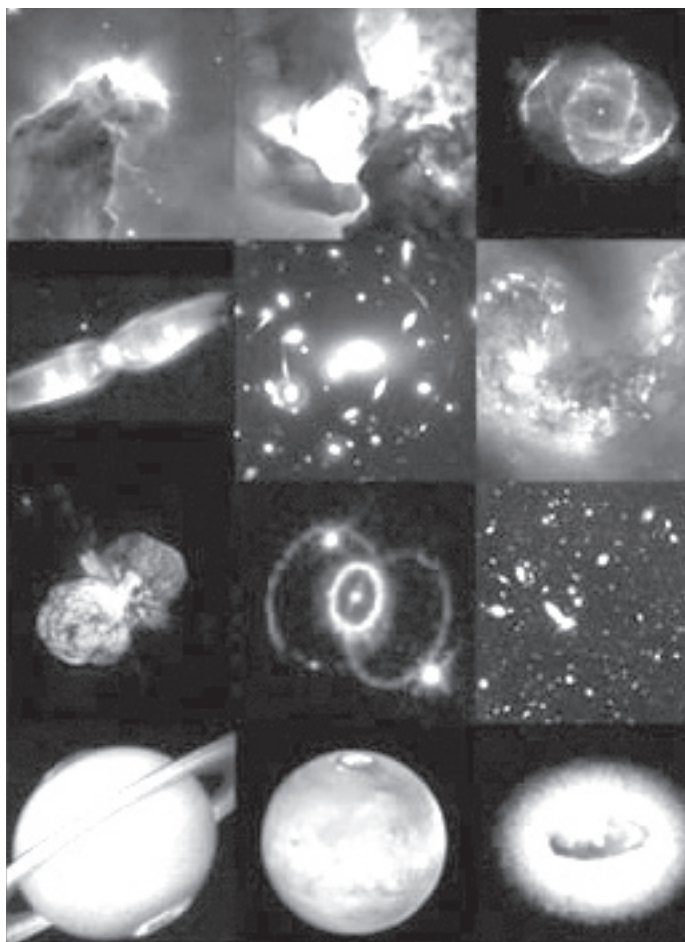


Evolution of the planet

At around 4600 million years old, the Earth is part of a **planetary system** known as the Solar System. This system is formed by the star named the Sun and eight planets, 166 moons, 5 dwarf planets, and billions of smaller objects (asteroids, comets, meteoroids, interplanetary dust). Since 1989, when the first planet outside the solar system was discovered, between 30 and 60 new planets are discovered every year, making a total of around 300 known planets in other solar systems to date.

The Solar System is located in the Orion Arm of the Milky Way galaxy. Galaxies are systems composed of stars, planets, gases, dust and dark matter, and the Milky Way is one of forty galaxies which form part of the so-called **Local Group**.

The Milky Way, one of the largest galaxies in the group, has a barred spiral shape and an average diameter of 100,000 light years (one light year is equal to nearly 10



Eighth Anniversary Image of Hubble's Hubble Site

Evolution of the planet

billion kilometres) and is composed of between 200 and 400 billion stars.

Since its formation, the Earth has gone through several stages in which life has progressively evolved. To understand the magnitude of time of these changes, imagine that the entire history of the Earth was condensed into one year. During **January** and **February**, the Earth went through a period of high temperatures which gradually decreased. After chilling, by early **March** the first primitive single-celled organisms appeared and these were the sole living

beings for five months (i.e., 2100 million years). In **July** the first bacteria and other organisms without nuclei appeared, and life continued with no major complications for three more months (1900 million years). In **November**, the first molluscs, arthropods, corals, fish and land plants (licopodios, horsetails and ferns) appeared. During the first weeks of **December** appeared the amphibians and reptiles, while birds and mammals appeared in the last week of **December**. The first hint of man was on the last day of **December**, and his civilization only developed in the final minutes of the last day of the year.

Era	Period	Epoch	Duration (million years)	Event	Condensation into one year	
Cainozoic		Holocene	0.007	"Civilization"	December '31 23:59 hrs	
		Quaternary	Holocene	0.01		December '31 23:50 hrs
	Tertiary		Pleistocene	2		December '31 20:00 hrs
			Pliocene	5	Human kind	December '31
			Miocene	25		December '29
			Oligocene	38		December '28
			Eocene	55		December '27
			Paleocene	65		December '25
Mesozoic	Cretaceous		138	Flowering plants	December '20	
				Separation of the continents		
	Jurassic		208	Mammals and birds	December '24	
	Triassic		245		December '10	
Palaeozoic	Permian		290	Reptiles	December '8	
	Carboniferous		360	Amphibians	December '3	
		Devonian		408		Insects & seed bearing plants
	Silurian		438		November	
	Ordovician		505	Terrestrial plants	November	
Cambrian		590	Arthropods & fish	November		
Archaean	Proterozoic		2,500	Bacteria	July	
			3,800	Unicellular life	March	
	Archaean		4,600		January	