Live from the Big Bang…

Contributed by Arnaud Marsollier
Wednesday, 02 June 2010
Last Updated Saturday, 07 August 2010

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}The cosmic microwave background - Credit NASA/WMAP

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}According to the Big Bang theory, the Universe was born 13.7 billion years ago and, with it came into existence the very

first particles of matter, visible and invisible. As the cosmic microwave background, some of these primordial particles and waves still exist. They are the witnesses to our Universeâ€™s history and enable us to go back in time to its very first moments.

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}The Planck satellite / creditÂ : ESA

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}The Universe bathes in a relic micro-wave radiation at a temperature of 2.7 Kelvin: the cosmic microwave background. This picture shows the echo of the first luminous emission of the Universe, which is 380,000 years old. Then, the photons were at last able to escape the primitive plasma which had become cold enough, allowing them to travel through space to us. Following the Cobe and WMAP satellites, the Planck space probe measures with a very high sensitivity the temperature fluctuations of this young Universe, the precursors of the first clusters of galaxies. However, to retrace the complete history of the Universe, it is necessary to observe it at even older times, when matter and radiation were coupled, and to detect high-energy neutrinos and gravitational waves of this early Universe.