Cassini-Huygens in Orbit around Saturn. Dennis L. Matson[1], Jean-Pierre Lebreton[2], Linda J. Spilker[3], [1]Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109, (dmatson@jpl.nasa.gov), [2]ESTEC/RSSD Planetary Mission Division, Keplerlaan 1, Norordwijk, 2200 AG Netherlands, (Jean-Pierre.Lebreton@rssd.esa.int), [3]Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, CA 91109, United States, (Linda.J.Spilker@jpl.nasa.gov).

Introduction: The Cassini-Huygens spacecraft was successfully placed in an orbit about Saturn on June 30, 2004. Starting with our approach to Saturn, the instruments carried by the Orbiter have been very active since early 2004. The Huygens probe mission was also recently completed. As a result, all of the Cassini Orbiter investigations and Huygens Probe investigations have scientific results to report.

Mission Overview: The excitement of discovery started with the flyby of Phoebe, a distant satellite and Cassini-Huygens' first "contact" with the Saturnian system. Phoebe dazzled us with its morphology and variation of composition across its surface. Next, the spacecraft entered the magnetosphere at a time several days sooner than we expected. Close to three weeks after the Phoebe flyby, Cassini-Huygens passed through the rings,and fired its engine to place itself in orbit around Saturn. At that time a series of close-in observations were made that provided unique observations of the rings and of the planet magnetic field. The second ring passage followed hours later on the outbound leg of the trajectory. Within less than 30 hours after the second passage through the rings, Cassini-Huygens approached Titan to within 340,000 km. Distant observations of Titan gave us direct indication that Saturn's largest moon is much more complex than any other object that we have ever seen. The first low altitude flyby on October 26th gave Cassini scientists their first good look at Titan and its surface from an altitude of 1200 km. A second low altitude flyby (2800 km altitude) of Titan occurred on 13th December. In the present paper we present an overview of the main mission events starting from Saturn approach, through the Huygens probe mission, until today. Highlights of the orbiter discoveries made so far are presented and placed in the context of what we know about the Saturnian system. Cassini-Huygens is a joint NASA-ESA program in cooperation with ASI.