ICY BODIES
OF THE SOLAR SYSTEM

IAU SYMPOSIUM No. 263

COVER ILLUSTRATION: ENCELADUS

Enceladus is a small though very active satellite of Saturn that shows water-dominated plumes.

Credit: NASA/JPL/Space Science Institute

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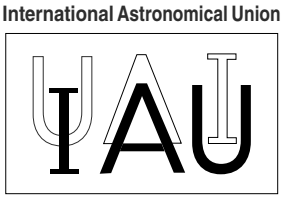

ICY BODIES OF THE SOLAR SYSTEM

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Preface

The study of the different populations of solar system small bodies is very important for understanding the accretion process in the protoplanetary disk, the different materials that condensed, and even the origin and transport of life among different worlds. This is particularly true for the ice-rich planetesimals formed beyond the snowline. Space missions, like Stardust, Deep Impact and Cassini, are bringing to us new insight about icy bodies like comets and satellites of the outer planets. Particularly interesting is the possibility that liquid water might have been present in the interiors of large icy bodies in the past, or even at present. Large surveys like Catalina, LINEAR and the upcoming Pan-STARRS or the Large Synoptic Survey Telescope (LSST) will allow us to improve our knowledge about the size and space distribution of populations of icy bodies like comets, Centaurs and TNOs.

The first ideas for this Symposium were raised during the 2006 IAU General Assembly, in Prague. At that time we felt that the great volume of new information about the different Solar System "icy bodies" would justify the proposal of a dedicated symposium, to be held in conjunction with the next IAU GA. Since its approval as part of the scientific program of the Rio de Janeiro IAU GA, we then aimed to attract planetary scientists from the different sub-areas and from a broad geographical distribution. To acheive this we took advantage of the fact that the IAU offers for this purpose a generous allotment of travel grants to assist colleagues with financial difficulties.

We are quite happy with the result: we received about 190 registrations, from which about 130 participants finally attended the symposium from around 20 different countries. The program was divided into 15 scientific sessions with 11 invited speakers, 48 oral contributions and 72 poster contributions, these discussed in three dedicated poster sessions. One key general review was also presented, as for the other symposia during the GA. The topics addressed in the symposium covered different aspects of icy bodies going from formation conditions in the protoplanetary disk, reservoirs and dynamical transport within the solar system, physics, space missions, and transition objects comet-asteroid, the latter a hot topic given the observation of activity in some main-belt asteroids. Last but not least, the relevance of icy bodies for life on Earth and elsewhere in the solar system was also addressed, in particular given the possibility that some large icy satellites of the Jovian planets might contain subsurface oceans. We present here part of the contributions to the symposium organized following the corresponding scientific program.

We are grateful to the IAU EC and Division Presidents for having selected this symposium to be held in conjunction with the XXVIIth General Assembly, an occasion when astronomers from all the fields of astronomy are gathered together. It is important to notice that this was the only symposium fully devoted to planetary sciences, an area that has had a great development in the last few decades. It is a great pleasure to acknowledge the members of the SOC, which ensured a very interesting scientific program, as well as the support from the National Organizing Committee of the XXVIIth IAU General Assembly. The confortable venue and the wonderful city of Rio de Janeiro resulted in the perfect setting for a memorable meeting.

Julio A. Fernández, Daniela Lazzaro, Dina Prialnik, Rita Schulz, Editors
Montevideo, Rio de Janeiro, Tel Aviv, Noordwijk, November 30, 2009

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