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Summary of the final discussion and conclusions of the workshop

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Abstract. On behalf of the round-table participants and of the contributors to the following general discussion, we briefly summarize here the conclusions of the 1^{st} Workshop on Science and Technology through Long Duration Balloons, held in Roma on June 3^{rd} and 4^{th}, 2008.

There was a consensus of all the participants to the final discussion on the success of this workshop (more than 150 participants, including scientists and industrial operators) that demonstrates the strong interest of the national community in stratospheric Long Duration Balloon (LDB) flights. In particular, the Italian ballooning community has shown to be large and creative enough to deserve a revived attention from the Italian Research and Space Institutes and Agencies with the aim to rise new investments available for space borne experiments. We, organizers, have been really amazed to see that a niche activity, with few long duration launches made possible at all by gentlemen agreement with our colleagues in Norway, has resulted in this kind of event.

From the final discussion we can extract a few, though important, technical, programmatic and managerial indication, shortly analyzed in the following statements.

• It has been widely recognized that Long Duration Balloon flights represent an extremely useful step in the development of new space activities, in the demonstration of critical subsystems and, in certain cases, the best way to perform cutting edge research as well as a platform for testing commercial and scientific equipement. Moreover, for university and research centers, balloons provide continuity and progression of development between satellite missions, which usually need 5 to 10 years to be exploited.

• Industrial interest can be clearly triggered by standardizing platform components (mechanical platform components, telecommunication platform, services of the launching facility), and by developing and testing new high-tech systems (like, for example, advanced power systems for polar night flights, or innovative world-wide coverage satellite telemetry sys-

tems, or cryogenic, micro-gravity, medical and biological systems, etc).

• Long Duration Balloon Flights from Svalbard (either circumpolar or to Greenland) are considered a key tool for Italian researchers, and should be further developed, launching large payloads and by demonstrating the feasibility of winter (night) flights. Both optical, mm-wave, cosmic-rays, biochemical and biophysical, climate change observations would boost their quality with the availability of long-duration night-time flights, potentially a unique asset of the Italian Space Agency / Andoya Rocket Range collaboration. The availability of the night flights would certainly attract other users from abroad. This is all part of the new age of the Italian LDB development, leading to a worldwide balloon launch and science support provisionary, with capabilities from Trapani, Svalbard, Antarctica, Malindi and other possible locations.

• Finally, it was pointed out by several speakers, presenting results obtained in the past years, that scientific ballooning has strongly contributed to the exploitation of science programmes, worldwide, providing significant scientific discoveries, ideal training experience for young scientists and technologists and a perfect test bed for new space instruments and technologies. It is also a common understanding that on the long run balloon borne instruments will continue to contribute to ASI science objectives, in the field of Infrared, Cosmic Microwave Background studies, High Energy Astrophysics, Earth Observation Science, Biology and Biophysics, Astroparticle, Planetary Science etc.

In view of the above, we strongly recommend ASI to support these activities by maintaining the launch team and improving the facilities, and by opening regular calls for balloon experiment and technology proposals.

These should also include payloads of opportunity, piggy back experiments and even, last but not least, educational projects. This has been agreed by the (many) members of the ASI Consiglio Tecnico Scientifico present at the workshop and by the people attending the final discussion. It was also unanimously recommended to ASI to issue the first ”Call” soon and to ensure regular/periodic (annual or biannual) Announcement of Opportunity for scientific balloon experiment and launch opportunities.

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