

**THE GALILEO SSI EXPERIMENT AT GASPRA: OVERVIEW AND EXPECTATIONS.** Michael J.S. Belton, NOAO; J. Veverka, P.C. Thomas, Cornell University; C.R. Chapman, PSI; K.P. Klaasen, JPL; G. Neukum, DLR; A.S. McEwen, USGS; J.W. Head, Brown University; M. Davies, RAND; R. Greeley, ASU; R. Greenberg, U. of Arizona; C.B. Pilcher, NASA; D. Morrison, Ames R.C.; A. P. Ingersoll, CalTech; F. Fanale, U. of Hawaii; T.V. Johnson, JPL.

Four images of Gaspra that were taken over a period of 35 seconds and through a sequence of four different spectral filters (559,404, 986, and 889 nm) were successfully returned from the Galileo spacecraft following the encounter on October, 29, 1991, at a communication rate of 40bps. The spatial resolution in these images, which were among the first to be taken by the Galileo camera after the successful removal of the front aperture cover, is approximately 320 m/lp. The phase angle was 39.2°. The pictures are part of a larger sequence of 150 frames that includes some 35-40 which contain further coverage of Gaspra. We describe the nature of this sequence and the scientific rationale that underlies it. The four pictures that were returned are part of the highest resolution color mosaic contained in the sequence. Still on the spacecraft tape recorder are images with spatial resolution approaching 92 m/lp, *i.e.* a factor of 3.5 times better than already achieved, and images that will provide color and shape coverage of a complete rotation of the asteroid. These images are expected to lead to an improved knowledge of the topographic relief and better definition of the crater diameter distribution function, the morphological characteristics of larger craters and linear features presently seen near the limit of resolution, the spin vector, and the overall shape of the object. At present it is expected that the full data set will be transmitted to the ground a few days prior to the Earth-Moon 2 encounter on December 8, 1992. We report on a search for objects, or dust, in orbit in the space around Gaspra. Nothing was found down to objects with radii of 27m (assuming the same albedo and photometric properties of Gaspra), however, only 0.014% of the theoretical stability zone around Gaspra has so far been sampled.

In this contribution we acknowledge the important role that ground-based observations played in the design and apparent success of the encounter sequence.