BAAS...26

cycle of our experimental works we have investigated chemical processes which accompany high-temperature transformation of different basic minerals, rocks, and meteorite matter.

Special attention was made for investigation of chemical effects of counteraction of hot ejecta with planetary atmosphere. Obtained results indicate extensive chemical processes involving hot ejecta and atmospheric gases and can give a certain understanding of the early evolutionary trends of primitive atmosphere, ocean and of silicate matter. An approach is also done to simulate experimentally the counteraction of a comet with reduced atmosphere.

05.30-P-L

Observations of the SL9 Impact on Jupiter from 0.4 to 2.16 microns at Pic-du-Midi Observatory

J.M. Gomez (GEA), J. Lecacheux (Obs. Meudon), F. Colas (IAP), P. Laques (Obs. Pic-Midi), D. Rouan (Obs. Meudon) D. Tiphene (Obs. Meudon), A. Sanchez-Lavega (UPV).

We present the time-resolved photometric light curves at 2.16 microns and films of the impacts of fragments H, L Q1 and S of comet SL9 with Jupiter. At least three different phases are seen during the brightness increase and up to its maximum of impacts H and L, whereas only a steady increase is observed during the impact S. Photometric data in the nearby bands at 1.25 microns (J) and 1.65 microns (H) are also given. We have determined the spectral reflectivity from 0.4 to 2.16 microns (continuum and metahne bands) of cloud system G and L as measured on 20 July, as well as their center-to-limb dependence. The tracking of the features in the red since their formation and up to September, has allowed to characterize their morphology changes and motions. The main spots associated to each impact remained nearly stationary in System II (i.e. their zonal velocities relative to the internal rotation perior - System III - were westward with u= -1 to -4 m/s). However the most remarkable features (complexes G/D/S/R and K/W, and spot L) showed a zonal expansion with velocities in the range u= 1 m/s to 31 m/s. Besides this, meridional motions have been detected within several impact regions, in particular within the complex G/D/S/R we have measured meridional velocities v= 6 m/s, both in the northward and southward directions from the impact center, reaching the cloud elements on 1 August the latitudes 61 deg South (bright SPR limit in the 890 nm methane band) and 37 deg S (STB)

05.31-P-L

Preliminary Results from CINE

J. Scotti, S. Larson E. Howell, R. Marcialis, M. Nolan, W. Wisniewski (U. Ariz.), M. A'Hearn, D. Wellnitz (U. Md.), H. Campins (U. Fla.), D. Rabinowitz, H. Butner (Carnegie Inst. Washington), S. Tapia (Phillips Lab./LIMA), F. Vilas (NASA/JSC), P. Doherty (Photometrics Ltd.), M. Bessell (Australian Nat. U., Siding Spring Obs.), N. Brosch, E. Liebowitz (Tel Aviv U.), A. Gilmore (U. Canterbury), P. Kervin (Phillips Lab./OL-YY), J. Africano (Rockwell Power Systems), S. Levine, W. Schuster (U. Nat. Autonoma de Mexico), R. Martin, A. Verveer (Perth Obs.), F. Moreno, A. Molina (Inst. de Astrofisica de Andalucia), R. Rutten (Royal Greenwich Obs.), M. Kidger (Inst. de Astrofisica de Canarias)

CINE, experiencing about 50% clear skies during the SL9/Jupiter impact week, amassed a large amount of data consisting of pre-impact images of the comet fragments, spectra of satellites during impact, direct images of the impact spots on Jupiter, and spectra of the spots. The comet had become too faint for useful studies of the interaction with the Jovian magnetic field, but the elongation of the inner coma by differential acceleration was observed within 1-2 days of impact. Positions of fragments E, G, L, P2 (8a and 8b),Q1,Q2, R, S, and W obtained at Las Campanas on 1994 July 16 near 04:00 UT and reduced with respect to the PPM astrometric catalogue generally indicate systematic residuals of -1" to -2" RA with respect to the pre-impact ephemeris, consistent with the impacts arriving ~10 minutes later than expected. With instrumental dead time averaging 50%, flashes of the impact meteor off satellites as continuum or spectral emissions were not observed at 2% of the satellite's brightness. The evolution of the impact spots were recorded with near continuous coverage during the impact period, and for over two months at less regular intervals. High resolution methane-band images and high resolution long-slit spectra across the spots provide information on the impact cloud height. High resolution narrow-band methane images show the impact plume of H to be 750km above the limb less than 20 min. after impact.

This project was funded by the NASA Planetary Astronomy Program, the USAF Space Command and the various host institutions.

05.32-T

Comet Shoemaker-Levy 9 Impact with Jupiter: Observations of [OI]6300 and Na D_2 Emissions from Io

F. Scherb, K. Retherford (UW-Madison), W. H. Smyth (AER, Inc.), R. C. Woodward

We plan to carry out observations of [OI]6300 and Na D_2 (5890) emissions near Io during a three-week period centered on the Comet Shoemaker-Levy 9 impact with Jupiter. The observations will be carried out with the stellar spectrograph at the McMath-Pierce telescope on Kitt Peak. We will search for observable effects of the comet and its cloud of dust and gas on the interaction of the plasma torus with Io's atmosphere.

This work was supported in part by NASA grant NAGW-3319.

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