01.23-P

A Synopsis of McDonald Observatory Imaging Observations of Jupiter Before, During, and After the Shoemaker-Levy 9 Impact

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We report on optical CCD and IR images of Jupiter which were obtained at McDonald prior to the impacts of Shoemaker-Levy 9, during impacts, about one week following the last impact, and almost one month after the last impact. The CCD observations were obtained through narrow-band filters which isolate the 6190 and 8900Å CH_4 bands and the adjacent continuum regions at 6040, 7640 and 8290Å. A barlow lens was utilized to expand the image on the chip so that Jupiter mostly filled the chip. The CCD observations before the impacts were obtained on the 0.9 m telescope, while the CCD observations during and after the impacts were obtained with the 0.8 m telescope. During the impacts and the following time, we obtained at least some data on each of 15 "nights" (we started observing as early as 4pm). The IR images were obtained on the 2.7 m telescope using a NICMOS3 array (Rokcam) with filters to isolate the 1.5μm NH_3 band, the 2.3μm CH_4 band, the 2.12μm H_2 S(0) pressure induced dipole absorption and the continuum at 1.58μm and short K-band. Rokcam observations were obtained on 11 nights during and following the impacts. In addition to the CCD and Rokcam observations, we obtained about 14 hours of real-time video observations using the Lunar Laser Ranging 0.8 m telescope. In the course of our observations, we observed the flash associated with the impact of fragment R. Observations were obtained during several other impact periods but no flashes were detected. We compare images of the planet obtained with the CCD and Rokcam, including a movie in some wavelengths. We also show a time sequence of certain longitudes of Jupiter. Cross-cuts of the images for different wavelengths are compared to show how the morphology of the spots, bands, etc. change with latitude and wavelength.

01.24-P

The Results of the Ukraine Observation Program of Shoemaker-Levy 9 Collision with Jupiter

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The photometric, polarimetric, spectral, photographic and radio observations of Jupiter before, during and after collision are carried out at the observatories of Ukraine, Middle Asia and Northern Caucasus. The spatial and time variations of polarization characteristics of atmosphere aerosol, the photometric profiles and the moments of flashes in Jupiter atmosphere, the changes in the structure of atmosphere cloud layer, the data on the state of Jupiter magnetosphere during the collision and Jupiter photographs of high spatial resolution (0.3 - 0.5 arc sec) are supposed to be obtained. All the results are going to be reported.

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01.25-P

Photoelectric Observations of Io and Europa in the Course of Fall Down of Secondary Nuclei A, H, Q2, Q1 and T of Comet D/SL-9 on to Jupiter

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Observations of the Jupiter satellites within the program for investigation of the comet D/SL-9 - Jupiter collision were held with the electrophotometer installed on the AZT-14 (D=0.5m) telescope at the Lesniki station of the Kiev University Astronomical Observatory. The electrophotometer worked in the regime of photon counting with registration on the PC IBM. In the course of observations standard UBVR filters were used. Temporal control tie was hand-made according to exact signals time. Circumstances for observations did not reveal changes in the satellites brightnesses which could be linked with reflection of light of fireball in the Jupiter atmosphere, with the exception of the nucleus fall down Q2. Here, two events that can be tied with the outburst during the nucleus fall down were found out. The first event has the following parameters: filter B, the outset of the outburst at 19:32:09 UT, continuity of the outburst 2.7 sec, the amplitude 0.12 mag [1]. Parameters of the second event: filter B, the outset at 19:48:10 UT, the continuity - 1.0 sec, the amplitude 0.11 mag. The second flash seems more probable both in continuity and it being close to the predicted time of the nucleus fall down Q2 on to Jupiter [2]. 1. Churyumov K.I. Io brightens. The Siderial Times, 1994, No. 10, p.5, IAU XXIInd General Assembly, The Hague. 2. Yeomans D.K., Chodas P.W. Comet SL-9 impact times. Interoff. memorand., 1994, 314.10-87.

01.26-P

The Comet Impact Network Experiment (CINE)

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The Comet Impact Network Experiment (CINE), an international collaboration designed to observe phenomena associated with the impact of Comet Shoemaker-Levy 9 with Jupiter was successfully deployed at the 4.2-m WHT at La Palma, Spain; the 2.5-m at Las Campanas, Chile; the 1.5-m at San Pedro Martir, Mexico; the 1.2-m of the Air Force Maui Optical Station, Hawaii; the 1.0-m at Mt. John Obs., New Zealand; the 1.0-m at Siding Spring Obs., Australia; the 0.6- m telescope at Perth Obs., Australia; a 1.0-m Air Force GEODSS telescope on Diego Garcia; and the 1.0-m telescope at the Wise Obs., Israel. Coronagraphic/spectrographic transfer optics were constructed to reduce the scattered light from Jupiter and normalize plates scales with the various facility CCD cameras. The main objectives were to 1) provide astrometric positions of the nuclei just prior to impact, 2) look for evidence of cometary particle fragmentation as the comet enters the Jovian magnetic field, 3) look for evidence of further breakup as the comet crosses its Roche limit, 4) obtain time-resolved spectra of the meteor flashes reflected off the satellites, 5) look for evidence of material ejected from the impact, 6) observe changes in the Jovian cloud morphology, and 7) look for evidence of dust capture and interaction with the Jovian ring. The project was implemented through the local observer-collaborators who applied for telescope time and provided the technical information needed to interface the coronagraphs with the telescopes and CCDs, and observers who accompanied the coronagraphs to the sites.

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