Z. Sekanina, P. W. Chodas, and D. K. Yeomans, Jet Propulsion Laboratory, California Institute of Technology, report: "Between 22 July and at least the last week of September 1994, Jupiter will be bombarded by the debris of P/Shoemaker-Levy 9 that populated the comet's west-southwestern trail. Between 27 July and 22 September, the impact sites will be located on the planet's near side as viewed from Earth. The collisions will occur at a decreasing pace both in terms of the event rate and the characteristic size of the individual particulates. We estimate that this debris consists of centimeter-to subkilometer-sized fragments, so that explosive phenomena triggered by the impact events will be much less powerful than those associated with impacts of the major fragments. Yet, searches for both possible individual events and any collective effects are encouraged. Our model predicts that the jovian-centric latitude of the impacts will vary from -44 deg in late July to +42 deg in late September. The Earth-Jupiter-impact site angle will reach its minimum of 69 deg on 3 September, at which time the impact geometry will be the most favorable for Earth-based observers. All impacts will be on the morning (eastern as viewed from Earth) side of the planet's disk. After 22 September, the impact sites move back to the far side, but by that time the impact rate will have diminished considerably."