

Evolution and Development of the Slow, Dusty Nova, V1280 Scorpii (Nova Sco 2007a)

L. Andrew Helton (USRA/SOFIA), William Vacca (USRA/SOFIA), Nye Evans (Univ. of Keele), Charles Woodward (Univ. of Minnesota – Twin Cities), Robert D. Gehrz (Univ. of Minnesota – Twin Cities), Frederick Walter (State Univ. of New York at Stony Brook), and Dinesh Shenoy (Univ. of Minnesota – Twin Cities)

The classical nova V1280 Sco erupted in February 2007 and was one of the brightest novae of the past decade. The system began producing an optically thick dust shell around 10 days after eruption, which is much earlier than is typical for dust producing novae. The dust condensation event lasted more than 100 days and preceded a very slow, protracted evolution of the ejecta. Early near- and mid-IR observations indicated that hydrocarbons were likely present. These characteristics made V1280 Sco an excellent laboratory to examine the evolution and development of dusty novae in general and specifically to explore the processes of dust condensation, growth, and destruction. Here, we present the history and significance of this fascinating nova and will discuss the implications for our understanding of dust formation and processing, with a particular emphasis on the role of hydrocarbon species.