

NOSL payload (Night/Day Optical Survey of Lightning)

The objective of the Night/Day Optical Survey of Lightning (NOSL) was to obtain motion picture films of lightning and correlated photocell sensor signals of that lightning. The NOSL equipment consisted of the camera, the attached photocell sensor, and the connected tape recorder. During launch, boost, and re-entry, the equipment was secured in storage lockers in the Shuttle's crew compartment. In orbit, the equipment was retrieved and assembled for use in the crew cabin. The motion picture camera was a 16-mm data acquisition camera, a model which had been flight tested on Apollo and Skylab missions.

A lightning event, visible only as a single flash, is almost always composed of many separate discharges, or strokes. The photocell could distinguish each stroke. The NOSL database of films and recorded lightning strokes was used in the development of sensors destined to be carried by future meteorological satellites. Those sensors were designed to detect lightning and identify severe thunderstorms.

The NOSL payload flew aboard STS-2, STS-4 and STS-6. The STS-2 crew, for example, recorded lightning at night and obtained excellent motion picture sequences of six large thunderstorm systems during the day.