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# National Weather Service

## Spaceflight Meteorology Group

### NASA Lyndon B. Johnson Space Center


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## STS 108

Utilization Flight 1  
Post-Mission Summary

STS-108, the 107th Shuttle mission, lifted-off from Pad 39-B of the Kennedy Space Center (KSC), Florida on December 5, 2001 at 22:19 UTC (4:19 PM CST) after enduring a launch scrub the previous day due to cloud ceilings and light rain showers. The Shuttle Endeavour was launched into a 51.6° orbit inclination at an altitude of 122 nautical miles. The prime Transoceanic Abort Landing (TAL) site was Zaragoza, Spain. The weather alternate TAL sites were Moron, Spain and Ben Guerir, Morocco. The Shuttle Endeavour remained in orbit for almost 12 days while the shuttle crew delivered supplies and the Expedition 4 crew to the International Space Station.

Launch Weather: December 5, 2001

High pressure to the northeast dominated weather over Florida. Evidence of onshore flow aloft was present. Showers over land were not as evident as they were the previous day and activity was moving westward. Surface winds were stronger than on the previous day, as well. Weak showers over the water developed early but were not a factor for RTLS since they met the RTLS Exception Rule of radar reflectivities less than 30 DbZ, isolated in coverage, and tops below than the + 5 C isotherm. Weather at the TAL sites was benign.

Landing Weather: December 17, 2001

A cold front to the northwest was moving into the Florida panhandle. A strong subsidence inversion was evident aloft around 7 000 ft with high pressure centered to the northeast of the Cape. There was some convective activity to the south over land and over the water. Some weak showers developed and dissipated fairly rapidly as they penetrated the inversion. The area of convection over land to the south was moving consistently northward and was expected to impact weather at the SLF at landing time. Lower cloud ceilings were developing in this convective area. Reports of cloud ceilings of 2900 feet AGL at Melbourne and in the Orlando area prompted the forecast update of BKN030 BKN065. Despite the "NO GO" forecast, the NASA Flight Director made the decision to de-orbit. Onboard video of the HUD showed the orbiter breaking out of the clouds at about 5500 feet AGL for a successful landing. Showers offshore remained offshore over the Gulf Stream and were not a factor to landing.

The Shuttle Endeavour touched down at the Kennedy Space Center in Florida on December 17, 2001 at 17:55 UTC (11:55 AM CST) and returned the Expedition 3 crew to Earth after 129 days in space. This marked the 57th shuttle landing at the Florida spaceport.

Other mission information is available at SMG's website under the link for the Spaceflight Meteorology Group (SMG) at <http://www.srh.noaa.gov/smg> or from NASA Public Affairs Office at <http://www.nasa.gov> web page or <http://spaceflight.nasa.gov/shuttle/>.

SMG Lead Meteorologist Dan Bellue worked his 97th mission (18th as Lead). Wayne Baggett was the Assistant Lead and Doris Rotzoll was the Techniques Development Unit Meteorologist.

Submitted by:  
Dan G. Bellue

STS 108 Lead Meteorologist

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