The initial Pathfinder landing site selected was Ares Vallis (19.5N, 32.8W, -1.7 km elevation). This site is a "grab bag" site with the potential for sampling a variety of Noachian plateau material...
MARS PATHFINDER LANDING SITE: Golombek

likely eolian in origin, the Ares Vallis site is probably less dusty than VL 1 based on the remote reflectivities. The data discussed at the workshop indicate that the Ares site can't be shown to be any more hazardous than the Viking landing sites. Finally, the Channeled Scabland in eastern Washington and the Ephrata fan are excellent analogs for Ares Vallis and the landing site, respectively, thereby providing valuable insight into geologic processes and potential surface characteristics.

The final project decision on the Mars Pathfinder landing site was made at the "Mars Pathfinder Landing Site Certification Meeting" held November 16, 1995 at JPL. At that meeting, all potential landing sites on Mars that met basic safety criteria were analyzed in detail. The site must be below 0 km elevation, between 10°-20°N in latitude, be free of obvious hazards of scales <1 km in <100 m/pixel (preferably <50 m/pixel) imaging data, have moderate to high thermal inertias, moderate rock abundances, low albedos and red-to-violet ratios, and have acceptable recent radar returns. The new radar data allow the elevation to be established to order 100 m uncertainty, which allows the potential use of a backup landing algorithm in case of descent altimeter failure. The RMS slopes from the radar data indicate the meter scale roughness of the site and the reflectivities indicate both surface bulk density and adequate descent altimeter radar returns to trigger solid rocket firing and airbag inflation.

Only 4 sites on Mars meet all the above criteria: Ares Vallis, Maja Fan, Tritonis Lacus (20°N, 252°W; Amazonis knobby plains material of unknown origin), and Isidis (18.2°N, 275.3°W; Amazonis smooth plains of unknown origin). For completeness 7 sites were evaluated in detail, along with the Viking landing sites for comparison. Complete data were evaluated for all the above criteria as well as crater abundance, hill and mesa abundance, slopes over 1-10 m, 10-100 m, and 100 m-1 km scales, low altitude winds (from global circulation models and slopes), the size-frequency distribution of large rocks (the airbags are designed to land on ≤0.5 m high rocks), as well as rover trafficability and science potential. Of the 4 sites that are acceptable based solely on these safety criteria, Maja Fan appears to be dustier than the others, based on combined thermal inertias, albedos, red to violet ratios and radar reflectivities. Ares Vallis, Tritonis Lacus and Isidis all appear acceptable, with Ares being somewhat rockier and the other two being somewhat dustier, based on thermal inertias and albedos.

Given that these three sites are all judged safe for landing Pathfinder, the decision to go to Ares was based on the clearly superior science potential at this site.