REPORT OF AIRS VALIDATION EFFORT FROM NASA GSFC/WFF

The proposal submitted by the Upper Air Instrument Research Project (UAIRP) of the Laboratory for Hygrospheric Processes' Observational Science Branch of Code 972 was to provide ozonesonde, chilled mirror sonde (SNOW WHITE), and ATM radiosonde observations. The plan proposed was to concentrate validation measurements into one month of every quarter. Thus, 2-3 observations of each type instrument would be flown each week for a one month period of each quarter. Funds requested to provide the necessary expendables were provided and procurement of the necessary instrument components was initiated. The Principal Investigator (Schmidlin) presented the UAIRP proposal to the meeting of the AIRS Science Team and Validation Team members responsible for providing in situ and/or ground-based measurements. This meeting, hosted by JPL in Pasadena, California in November 2001, provided a great opportunity to interact with everyone involved with the AIRS mission.

After a limited discussion, it was indicated that validation measurements from a number of locations was desirable. Individual validation profiles from a larger number of sites would be useful in detailing the AIRS algorithm development. The sample sizes at each site selected would not be as great as would be obtained from just Wallops Island. Financially, carrying out validation measurements from more than one site would not be a problem since the original proposal asked for sufficient funds for the required expendables; it was only a matter of rescheduling equipment and personnel. Unfortunately, the proposal did not provide sufficient funds to send personnel to a large number of field locations. The plan of making validation measurements from various sites will continue and contractor travel and overtime resources will continue to be insufficient, except for Wallops and an occasional 'offshore' site. Additional dialogue concerning this issue will be given later in this report.

Following the insertion of AQUA and the turn-on of the AIRS instrument, in situ validation measurements were scheduled from Wallops Island, (38 N), Andenes, Norway (69 N), and Andros Island, The Bahamas (24 N), Natal, Brazil (6 S), and Ascension Island (8 S). Why the Andoya Rocket Range in Andenes, Norway was included is because of the planned MaCWAVE Campaign. Dr. R. A. Goldberg (690) and F. J. Schmidlin (972) were investigators in a Code S mission to obtain rocket measurements for the purpose of studying wave activity in Scandinavia. The campaign name, MaCWAVE, or Mountain and Convective Waves Ascending Vertically Experiment presented UAIRP the opportunity to leverage the cost of the personnel needed in Norway. MaCWAVE was a two-part campaign; part 1 took place in Norway in July 2002 and, part 2 took place in Norway and in Sweden in January 2003. Regular radiosonde types were flown as well as chilled mirror profiles in only Norway. Because of the high latitude involved sufficient overpasses of AIRS occurred each day enabling a balloon release close to the most desirable orbit. Four standard radiosonde profiles and five SNOW WHITE (chilled mirror) profiles were delivered to the JPL AIRS archive files.. Coincidently, the MaCWAVE rocket observations launched for MaCWAVE also coincided with AIRS ephemeredes and eight Falling Sphere temperature profiles will