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DEPARTMENT OF ATMOSPHERIC, OCEANIC, AND SPACE SCIENCES
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UM Authorization (when required)	_____

This is the final report on NASA Grant NAG5-10181. The effort under this contract consisted mainly with meetings and discussions with our NASA/GSFC and ISAS partners of the neutral mass spectrometer team of the Nozomi mission. The activities were to serve the purpose to prepare and co-ordinate our activities in preparation for the anticipated data analysis and science interpretation of the data after Mars orbit insertion. Given the unfortunate initial delays this effort included a number of visits to ISAS in Tokyo and participation in co-ordination and science workshops. We participated in a paper describing the instrument, which was published (Niemann et al, 1998).

We also worked on certain theoretical calculations in order to evaluate measurement opportunities for the mass spectrometer at Mars. The major aspect of this effort was a series of calculations on the feasibility of measuring hot atoms in the upper atmosphere. We calculated the densities of hot oxygen and carbon. Although this work established that their abundance is probably below the sensitivity of the mass spectrometer, it was of scientific importance and the results were presented at scientific meetings (Kim et al., 1998a; Kim et al., 1998b; Nagy et al., 2000; Nagy, 2001a) and published in the open literature (Kim et al, 1998c; Nagy et al., 2001)

Papers published with the support of this contract:

The Planet-B neutral gas mass spectrometer, H. B. Niemann et al, Earth, Planets Space, 50, 785, 1998.

Solar cycle variability of hot oxygen at Mars, J. Kim, A. F. Nagy, J. L. Fox and T. E. Cravens, J. Geophys. Res., 103, 29339, 1998c.

Hot carbon densities in the exosphere of Mars, A. F. Nagy, M. L. Liemohn, J. L. Fox and J. Kim, J. Geophys. Res., 106, 21565, 2001.

Papers presented with the support of this contract:

The hot oxygen corona of Mars and the resulting escape flux, J. Kim, A. F. Nagy, J. L. Fox, T. E. Cravens, paper presented at the 32nd COSPAR Scientific Assembly, Nagoya, Japan, 1998a.

The hot oxygen corona of Mars and the resulting escape flux, J. Kim, A. F. Nagy, J. L. Fox, T. E. Cravens, paper presented at the Western Pacific AGU Meeting, Taipei, Taiwan, 1998b.

Hot carbon densities in the exosphere of Mars, Nagy, A. F., M. W. Liemohn, J. L. Fox and J. Kim, Fall AGU Meeting, San Francisco, 2000.

Hot atoms in planetary exospheres, A. F. Nagy, IAGA Assembly, Hanoi, 2001.