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Final Report

Pioneer Venus Orbiter Electron Temperature Probe

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FINAL REPORT

PIONEER VENUS ORBITER ELECTRON TEMPERATURE PROBE

INTRODUCTION

This document lists the scientific accomplishments of the Orbiter Electron Temperature Probe (OETP) group lead by L. H. Brace, formerly of NASA/Goddard Space Flight Center and currently at the University of Michigan's Space Physics Research Laboratory, Ann Arbor, Michigan. The OETP instrument was fabricated in 1976, integrated into the PVO spacecraft in 1977 and placed in orbit about Venus in December 1978. The instrument operated flawlessly for nearly 14 years until PVO was lost as it entered the Venusian atmosphere in October 1992. The OETP group worked closely with other PVO investigators to examine the Venus ionosphere and its interactions with the solar wind. After the mission was completed we continued to work with the scientist selected for the Venus Data Analysis Program (VDAP), and this is currently leading to additional publications.

OETP ACCOMPLISHMENTS

The OETP scientific accomplishments have been documented in the attached nearly 100 publications by the OETP group and its associates. Other PVO investigators also used the OETP data in their own publications. These are included in the Pioneer Venus Final Bibliography published in July 1994 by the Pioneer Project Office at NASA/Ames Research Center, Moffett Field, CA, 94035 (Contact Larry Lasher, Pioneer Science Chief, Mail Code SSP-244-14).

DATA SUBMISSION TO THE PLANETARY DATA SYSTEM

Several types of OETP data products have been submitted to NASA's Planetary Data System, PDS. These include the Unified Abstract Data (ionospheric electron densities and temperatures derived from volt-ampere curve fitting), High Resolution N_e measurements, Bowshock and Ionopause crossing times, and total solar EUV flux measurements made just prior to each periapsis passage. These data sets and the associated documentation are available through the PDS.

SUMMARY OF PUBLICATIONS

The OETP publication list provides some indication of the extent of the OETP scientific accomplishments. This list is limited to publications by scientists who at the time were associated with the OETP group, and who employed primarily OETP data. Other papers used OETP data for comparison purposes are listed in the Pioneer Venus Final Bibliography published by the Pioneer Project at NASA Ames Research Center.

The OETP results are far too extensive to review here in detail, but two review chapters (listed as references 33 and 65) provide a good overview of the ionosphere results from PVO. The most recent review paper (attached reference 65) provides the best review.

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