

## 1. Introduction

The Midcourse Space Experiment (MSX) satellite was launched on April 24, 1996. The principal goal of MSX was to collect phenomenology data in support of ballistic missile defense objectives. Additional objectives were to collect data in support of a variety of civilian science objectives in earth and atmospheric remote sensing and astronomy. A full set of experiments mapped the galactic plane, the IRAS (Infrared Astronomical Satellite) gaps, the zodiacal background, confused regions away from the galactic plane, deep surveys of selected fields at high galactic latitudes, large galaxies, asteroids, and comets. This bundle includes infrared observations of asteroids serendipitously

## 2. Archive Contents and History

The MSX Infrared Observations (MIMPS) data was archived in PDS in the PDS3 archiving standard from 2004. Table 1 shows the resulting PDS3 MIMPS data set that was included in this bundle. The other Galileo instruments' data have been archived at PDS PPI node, in both PDS3 and PDS4, and can be found there.

*Table 1. PDS3 MIMPS data included in this bundle*

Data Description	PDS3 Data Set ID	Date archived	PDS node
MSX Infrared Minor Planet Survey	MSX-A-SPIRIT3-5-SBN0003-MIMPS-V1.0	2005-06-16	SBN

During 2025, the PDS3 MIMPS holdings were migrated to the PDS4 archiving standard by the Small Bodies Node. The data files are unchanged. This bundle includes infrared data for 168 main-belt asteroids serendipitously observed by the Midcourse Space Experiment (MSX) in the course of its long-scan astronomy survey observations, as well as albedos and diameters derived from the data..

Document and metadata changes made during the migration of the data sets include:

- No primary data files were modified.
- Metadata in the PDS3 labels were migrated to PDS4 labels.
- All documentation was moved to a new document collection
- A new bundle overview document (the one you are currently reading) was created
- PDS3 data documentation was restructured as needed to reflect the new PDS4 bundle organization.

## 3. MSX MIMPS Bundle Contents

The MIMPS bundle contains a data collection and a document collection.

This **data** collection contains a sightings file with a complete list of MSX asteroid sightings, a diameters and albedos file listing results for each asteroid (including singleton as well as multiple sightings), and a table of the filter bandpasses. (See section 4).

The **document** collection contains all of the documentation needed for the MSX MIMPS bundle. The *msx\_mimps\_bundle\_overview.pdf*, the *data\_collection\_description.txt*, the *msx\_spacecraft\_description.txt*, the *instrument\_description.txt*, the *msx\_mission\_description.txt* and the *references.txt*. (See section 5).

## 4. The data Collection

The data collection contains three files

**mimsalb.tab** contains the average albedos and diameters for the asteroids observed in MIMPS

**mimpsfilt.tab** contains a table that describes the MSX radiometer filter bands.

**mimssight.tab** contains a table that lists the MIMPS asteroid sightings, along with observational circumstances, flux densities in each band, and albedos determined from the flux density observed in each band. A 'sighting' is considered to be the detected passage of an asteroid across the MSX focal plane, whereas an 'observation' is a detection in a single band.

## 5. The document Collection

The document collection contains 6 documents.

The **msx\_mimps\_bundle\_overview.pdf** document (the document you are reading now).

The **data\_collection\_description.txt** document describes the MSX MIMPS data collection and its contents.

The **instrument\_description.txt** document contains the description of the MSX instrument.

The **references.txt** document contains the reference list for the bundle.

The **mission.txt** document describes the MSX mission.

The **spacecraft.txt** document describes the MSX spacecraft.