THE UV ASTEROID & SMALL BODIES ARCHIVE. Amanda R. Hendrix[1], Faith Vilas[1], Jian-Yang Li[1], Dennis Bodewits[2], Lori Feaga[3]. [1]Planetary Science Institute, Tucson, AZ (arh@psi.edu), [2]Auburn University, Auburn, GA, [3]University of Maryland, College Park, MD.

Introduction: In this project we create a one-stop shop of ultraviolet (UV) data of asteroids (84 small bodies in total) and Mercury for easy use by planetary scientists. Currently several of the existing UV datasets are not in the PDS and are unavailable for scientific use by the broad community; others are available only in their raw form. Because UV wavelengths deliver critical access to the uppermost layers of the regoliths of these airless bodies, and can often offer unique compositional information, providing these data in one location will allow for comparative studies over wider ranges of wavelengths, studies of compositional and space weathering effects throughout the solar system, and the often numerous observations of each body will allow for the study of possible temporal and spatial variability.

The study of the spectral reflectance of small bodies in the solar system is critical for characterizing this wide-ranging population of bodies. Typical spectral reflectance studies are undertaken in the visible-near infrared (~0.4 – 3 μm) spectral region – however it is vital when studying these bodies to consider the largest wavelength region possible, given that diagnostic absorptions may appear in different spectral regimes and could be missed if a region is not studied. It is with this idea in mind that we propose to archive the many existing UV observations of small airless solar system bodies, including Mercury, bringing together for the first time a uniformly-reduced and calibrated suite of UV datasets of small airless bodies. We will include asteroid datasets from the *International Ultraviolet Explorer (IUE)*, *Hubble Space Telescope (HST)*, *Swift UVOT*, *Rosetta Alice*, *Mariner 9 Ultraviolet Spectrometer (UVS)*, *Galileo UVS*, the Blue Channel Spectrograph on the *MMT Telescope*, and the Mercury dataset from the *Mariner 10 UVS*.

The archived small bodies datasets and higher order products will be accessible to the community through the Small Bodies Node (SBN) of the Planetary Data System (PDS) – as the **UV Asteroid & Small Bodies Archive** – and will allow users, even those who don't normally utilize UV wavelengths, to study these bodies. A key aspect of the proposed work is that we wish to make the data easily accessible, in one location; though some of these datasets have been archived in their raw formats, we will archive higher-order products, namely reflectance spectra and associated observational geometry. A further notable feature of the Archive is that there will be, for some asteroids, multiple observations from different observatories/instruments – allowing for critical cross checking of calibration and reflectance derivations. The *Mariner 10 UVS* data of Mercury have not been utilized (or even easily accessible) for decades; the UV Mercury data will be archived in the Geosciences Node of the PDS.

Creation of Archive: We are currently in the process of creating the archive and expect that it should be live in 2020, after all products have been reviewed. In this LPSC presentation, we will highlight sample spectra and provide a table of all observations to be archived.

Each of the datasets discussed here (*HST*, *IUE*, *Galileo*, *MMT*, *Rosetta*, *Swift*, *Mariner 9*) will comprise a collection within the overall UV Archive bundle for PDS4 on the SBN. The *Mariner 10* dataset will make up its own bundle on the Geosciences node. Each collection will include as much detail as possible about the dataset and associated geometry and observing conditions, included as collection description (label) files. We expect that collections will include raw data, calibrated data, reflectance data, observation log notes and information on solar spectra/analogues, along with observational geometry. Where multiple observations for a single body exist from a single instrument, we will include individual observations and a composite observation in order to offer potential temporal resolution of asteroid composition across the asteroid's surface.

The archive is intended to be buildable, such that as additional UV observations are taken, they can be added to the archive for access by the broader community.