

# Standards Change Request

**Add astronomical unit (AU) as a valid unit**

<SCR3-1162.vn>

## **Provenance:**

Date: 2009-12-09

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## **Problem:**

The PDS Data Dictionary does not have astronomical unit (AU) as a valid unit. This is probably due to the fact that AU is not an SI unit. However, according to the National Institute of Standards and Technology, astronomical units are identified as "units outside the SI that are accepted for use with the SI". (See <http://physics.nist.gov/cuu/Units/outside.html>).

## **Current Urgency:**

The M3 mission has provided the following justification for this request:

“In 2005, the USGS released The Unified Lunar Control Network 2005 as an open file report (see <http://pubs.usgs.gov/of/2006/1367/>). In order to be compliant with LRO and other lunar missions, M3 seleno-correction uses the IAU standard for lunar radius. It is suspected that PDS will be requested to add the unit AU to its dictionary by other lunar projects. It is preferable to use AU instead of SOLAR\_DISTANCE for the M3 mission.”

## **Proposed Solution:**

It is proposed that the PDS add astronomical unit (AU) to the list of valid units.

## **Impact Assessment:**

PDS Standards Reference – The PDS Standards Reference, version 3.8, Chapter 18, would need to be updated to explain that although AU is not an official SI unit, it is accepted for use with the SI, consistent with the recommendations of the International Committee for Weights and Measures.

Archive Preparation Guide – No impact

Proposer's Archive Guide – No impact

Planetary Science Data Dictionary – The Planetary Science Data Dictionary Document, version 1.76., will need to be updated as illustrated below under the 'Requested Changes:' section.

PDS tools -- pdsdd.full will need to be updated to include astronomical unit.

**Additional Information:**

<http://physics.nist.gov/cuu/Units/outside.html>

**Requested Changes:**

Planetary Science Data Dictionary Document, version 1.76.  
Update Section 2.6, Units of Measurement, to include astronomical unit (AU).

Unit Name – astronomical unit

Symbol – AU

Measured Quantity – length