

S_RINGS/CALIB/RSnCmS.{LBL,TAB}

1. Perhaps I'm being unnecessarily dense here, but I don't understand what this noise power represents. What are the questions being asked that motivate you to generate these files? Noise power seems to increase from about 0.03 to nearly 0.06 in RS1C1S.TAB. This COULD mean "noise power" is following the system temperature with decreasing elevation angle at the DSN station; but I don't recall that Stanford paid much attention to system temperature in the 1980's. It was sufficient that the carrier level remain essentially constant during the course of the observations. If related to system temperature, I would expect numbers to be on the order of 1e-20 watts, not 0.05. I also expect noise power to have units of watts; in RS1C1S.LBL UNIT = "N/A".

RESPONSE: A search on "noise" in TUTORIAL.TXT will reveal that it is used to determine the confidence intervals on opacity and phase. See also CALINFO.TXT, which provides the relevant formulas. We have expanded this discussion a bit in the revised version of the tutorial.

2. Much of the DESCRIPTION in the label files seems to be about files that are in the DOCUMENT directory. The antecedents for many uses of "this" are not clear - are we talking about the files in S_RINGS/CALIB or the files in DOCUMENT/CALIB?

RESPONSE: We have reviewed each use of the word "this" in our labels. We have revised the wording in a few places; elsewhere, we believe the antecedents are consistent and unambiguous.

3. There seems to be an implicit criticism that "the noise power had been held fixed in 10-km intervals." But the tabulated values here are at 100 km intervals; I don't follow the logic in criticizing 10 km averages, then following up with 100 km spline fit results.

RESPONSE: This was not a criticism at all. It's just something we figured out about how the Stanford team processed the data, and we believe it is worth documenting.

S-RINGS/SORCDATA/DATAINFO.TXT:

There are a number of content and editorials problems. Line 37 lists RSnS2B3.DAT as being one of the files; I think this should be RSnS1B3.DAT. Files #1 and #2 are described as X-band impulse and step responses; I believe these files are not wavelength related. One of the section headings is titled "Overview of Saturn Raw Data" when, in fact, these are being called "source" data to distinguish them from "raw" data, which are located elsewhere on the volume. I have rewritten DATAINFO.TXT.

RESPONSE: The references to X-band in Files #1 and #2 are correct. We have adopted most of the other recommended changes to DATAINFO.TXT.

S_RINGS/SORCDATA/RS1S1B{1,2,3}.LBL:

The first two labels show WAVELENGTH = 3.5E04, the third shows WAVELENGTH = {3.5E04, 13E04}; all DESCRIPTION entries refer to X-band. In fact, these files should be exclusively S-band.

RESPONSE: As noted above, Files #1 and #2 refer to X-band. The ring profiles in Files #3 contain both X-band and S-band data. No changes were made.

U_RINGS/CALIB/RSnCmS.{LBL,TAB}

1. The same kinds of questions. But the calibration files are now even more puzzling since there is not even any variation in the noise power with radial distance. Even if the system temperature were stable to 4 significant figures, it's hard to believe the ring profiles would match up that well.

RESPONSE: Noise does not vary because these are very short profiles of individual rings. The files exist to enable the processing software to work.

2. there were both ingress and egress at Uranus and they weren't identical (at least, not all of them).

RESPONSE: The final "I" or "E" in most file names indicates whether the data is relevant to the ingress or egress occultation.

S_RINGS/RAWDATA/RS1R1BDI.LBL:

This label includes the keyword=value pair

PLANETARY_OCCULTATION_FLAG = N

But the definition of PLANETARY_OCCULTATION_FLAG in DOCUMENT/PDSDD.TXT is not clear. It says

DESCRIPTION = "
The planetary_occultation_flag element is a yes-or-no flag
that indicates whether a ring occultation track also
intersects the planet."

But what is a 'track'? Is it the experimental geometry? If so, then this track definitely did include a planetary occultation. That planetary occultation is included in the experimental data (but not this data set), and maybe the value should be 'Y'?

RESPONSE: We have changed all values to "Y".

S-RINGS/RAWDATA/RS1R1BDP.LBL:

1. Confirm that units of phase are CYCLE. I think maybe it should be DEGREE. Uncertainties on the order of 0.5 and larger would make many of these phase numbers unusable.

RESPONSE: Confirmed. See line 442 of RS1S_DOC.TXT.

2. Isn't PC_REAL the same as either IEEE_REAL or VAX_REAL?

RESPONSE: PC_REAL is byte-reversed IEEE_REAL, so not the same.

S_RINGS/SORCDATA/RS1S1B1.LBL:

The keyword=value pair

WAVELENGTH = 3.5625981e4 /* microns, X-band */

implies this file is not to be used with S-band. I don't believe that is true. The inversion procedure is INDEPENDENT of the original wavelength. If this so, then this keyword needs to be checked in ALL of the labels. It probably should be set to both values everywhere; or not used except for labels describing data derived from file 3 on any Stanford tape.

RESPONSE: The first column in each of the files is in units of meters. This requires that the wavelength also be assumed.

S_RINGS/RAWDATA/RS1S1BT.LBL:

1. The pointer in this label is ^TABLE; but there is no table.

RESPONSE: Fixed.

2. The NOTE in the TEXT definition refers to the "tape header file RS1R1BFV.DAT"; I think it should refer to the "HEADER RECORD of RS1R1B3.DAT". If there are other errors of this type, finding and correcting them is going to be a real chore!

RESPONSE: Either would be correct, because this file was derived from RS1R1BFV.DAT, which was derived from RS1R1B3.DAT. We have opted to leave this note unchanged.

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