CIF Complete Dataset Description

This document describes the values in CIF\_Complete\_Dataset.csv, which was created by pulling raw data from the MAROS, TLMWeb (TDS), and ElasticSearch (GDS) APIs. The data from these sources were combined into one csv file by merge\_datasets.py.

MAROS Columns

* MAROS\_overflightID – a unique name for a pass
  + Contains the orbiter used and the date (year and day of year).
* MAROS\_lander\_return\_value – the actual data volume on the rover during the pass
  + Measured in megabits
* MAROS\_orbiter\_return\_value – the actual data volume on the on the orbiter during the pass
  + Measured in megabits
* MAROS\_pass\_time – the time at which the orbiter started receiving data
* MAROS\_hail\_duration – the period of time that the rover would like an orbiter to attempt to initiate a relay session
* MAROS\_rise\_elevation – the elevation of the orbiter when it first becomes visible to the lander
* MROS\_max\_elevation – the maximum elevation of the orbiter

I will see if I can get the rise elevation time, and max elevation time.

TDS Columns

* TDS\_DSS – the deep space station that received the downlink
* TDS\_Start ERT – the actual time at which the deep space station started receiving data
  + Each frame has a unique time stamp. This value is the minimum of the time stamps.
* TDS\_End ERT – the actual time at which the deep space station stopped receiving data
  + Each frame has a unique time stamp. This value is the maximum of the time stamps.
* TDS\_Pub – the orbiter used in the downlink
* TDS\_insync\_tf\_0 – the number of insync transfer frames from the “A” computer on the rover
  + The rover has two computers, but only uses one at a time. The other is a backup.
  + 99.99% of the time, this value can be converted to megabits by multiplying by 1120/125000
* TDS\_insync\_tf\_32 – the number of insync transfer frames from the “B” computer on the rover
  + This is the primary computer on the rover before sol 2189.
  + 99.99% of the time, this value can be converted to megabits by multiplying by 1120/125000
* TDS\_outasync\_tf – the number of outasync transfer frames in the pass
  + Not sure how many outasync frames implies that data is missing

GDS Columns

* GDS\_sol – the sol that the pass was scheduled to occur
* GDS\_overflightID – a unique name for a pass
  + Contains the orbiter used and the date (year and day of year).
* GDS\_wid – the window ID of the pass
  + The first digit corresponds to the orbiter used.
  + The last digit corresponds to the time of the pass.
  + The middle three digits are the last three digits of the sol. After 1000 sols, window IDs can repeat, and are not unique.
* GDS\_predictBeginErt – the predicted time at which the deep space station will receive data
  + The pass is scheduled weeks in advance
* GDS\_predictEndErt – the predicted time at which the deep space station will stop receiving data
  + The pass is scheduled weeks in advance
  + Sometimes the predicted end time can be before the predicted start time.
* GDS\_beginErt – the actual time at which deep space station started receiving data
  + According to the GDS automated software
  + This value may be incorrect
* GDS\_endErt – the actual time at which the deep space station stopped receiving data
  + According to the GDS automated software
  + This value may be incorrect
* GDS\_dataPredict – the predicted data volume of the pass
  + Measured in megabits
* GDS\_dataActual – the actual data volume of the pass
  + Measured in megabits