

## Problem 2 (120 minutes)

You have a data file (attached) with measurements of the spacecraft potential from the Cluster 1 spacecraft collected at 5 samples per second. Using this data produce **continuous (evenly sampled, no gaps)** time series of the spacecraft potential at **4 sec resolution** (4 sec = spacecraft spin period) covering the **entire 1.5 hour** interval and **write it to a similarly formatted file**.

Data values of 157e7 are fill values indicating bad data; **such points must be ignored**. Fill values must be used during data gaps; short data gaps, i.e. shorter than 10% of the sampling period (10% of 4 sec), **can be ignored**.

After 90 minutes: e-mail the code to me.

Use the remaining 30 minutes to document your code: provide instructions on how to run it, describe the code itself, assumptions made, constraints, etc. and e-mail the documentation to me.