Numerical methods and F90, fall 2015

Exercise 8

Return before Nov 25.

In the file `psyche.dat` there is a lightcurve of the asteroid Psyche (time in hours UT and magnitude). You can use that as test input in the exercises.

1. Write subroutines to apply a nonrecursive and recursive median filter to a data set. Test the subroutines with a suitable main program.

2. Try to find the rotation period using the Fourier transform program.

3–4. Calculate the autocorrelation function of the lightcurve. What is the probable period? Add random white noise to the light curve and study how much noise is tolerated to still detect the period.