Tool for ArchaeoAstronomy   *Author: Alberto Cavalli*

Issues related to Horizon Profiles taken from HeyWhatsThat or PeakFinder.

Version 1.4.0 and higher

Introduction

The most convenient way to access SRTM data for generating a horizon profile for a site is certainly to download the data produced for Stellarium by these sites and then adapt them to your own software. It's not a particularly complicated procedure, you just need to open the file that contains the azimuth - height pairs, process that and ignore everything else. However, both sites generate data that are not exactly perfect and we will now see in detail what the problems are.

HeyWhatsThat (HWT)

Interesting is the possibility to check the position of the inserted coordinates on the map of the HWT website. The problem is that when we save the data in Stellarium format if we are in the USA everything is fine, we get an excellent and detailed profile, outside the USA we often (but not always) get dirty data in the profile due to the fact that the sampling applied by HWT is always the same. US data and non-American data, so to speak, do not have the same quality. This was confirmed to me by the Author of the website himself, Michael Kosowsky, who I contacted some time ago.
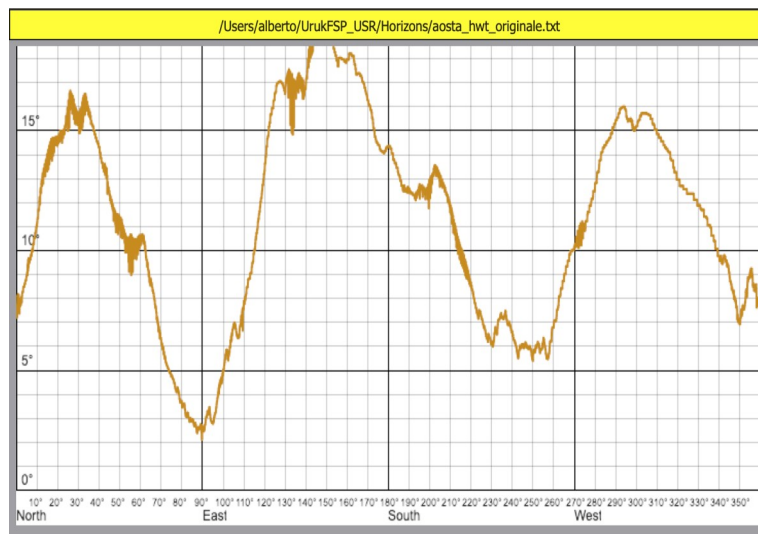

Image 1

Image1 shows the original profile, which contains 2880 pairs, and which presents rather evident spurious data at azimuths ranging from 0° to 60°, then again to 130°, 200° and then to about 270°. Let's see in practice how these spurious due to over-sampling are shown.

The effect, visible in Image2, is rather unpleasant. Here we are at Azimuth 53° and something very similar is repeated in the areas I indicated earlier.
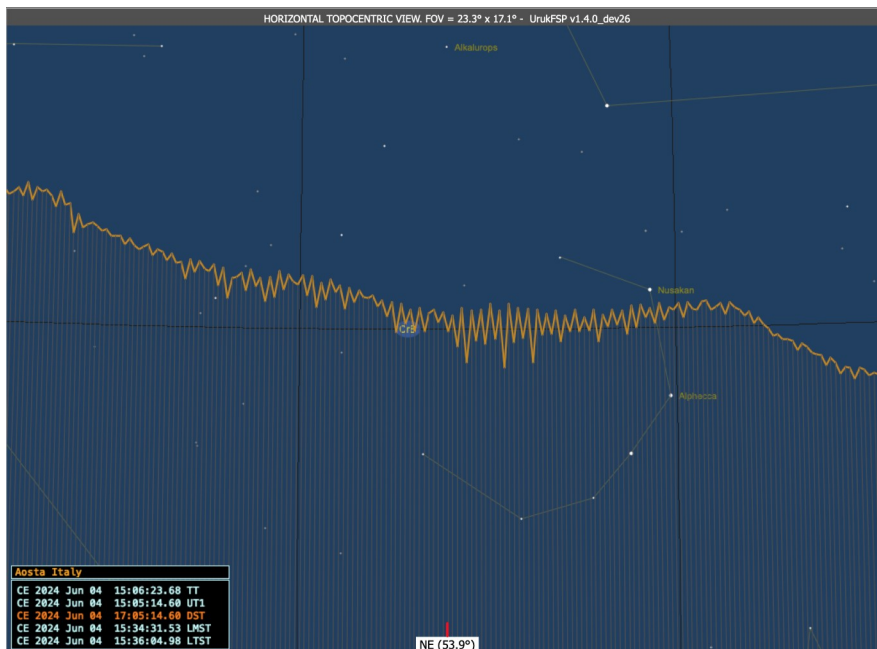

Image 2

By giving a **.hwt** suffix to the profile generated by HWT, once it is adapted for working with Uruk-FSP, UrukFSP will load it performing a 1:4 sub-sampling, which reduces the pairs from 2880 to 760, but improves in most cases the quality of the profile. See Image3.
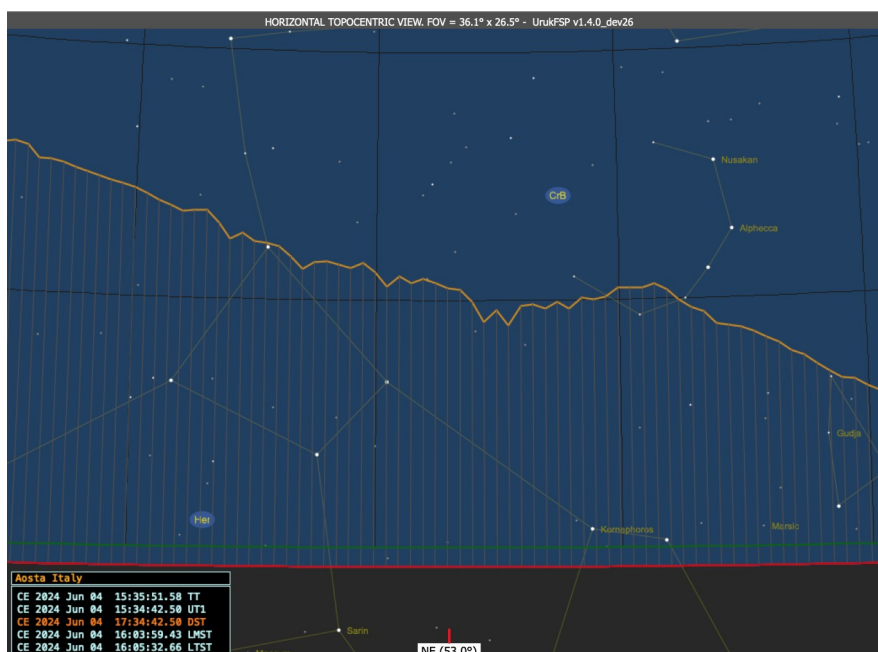

Image 3

Unfortunately, this is not the only unpleasant effect that can be obtained from HWT profiles. Sometimes big squared shapes that are even uglier, are visible, and in that case the horizon profile becomes unusable.

PeakFinder(PKF)

A PKF-generated Horizon Profile basically presents two types of problems: the first is that the exportable data file for Stellarium has significantly a lower quality compared to what you see on the website (I have no idea if this is intentional or not) and the second is that when a data pair has height <= 0° it is simply omitted. In short, those who use a projection such as the stereographic one to represent the sky are forced to recreate these pairs of points without knowing, among other things, whether they have negative values of height with respect to the astronomical horizon or not. By saving the profile exported from PKF with the .pkf suffix, after having adapted it to the use of UrukFSP, a reconstruction of the missing data couples, assuming a constant height of 0°, is performed.

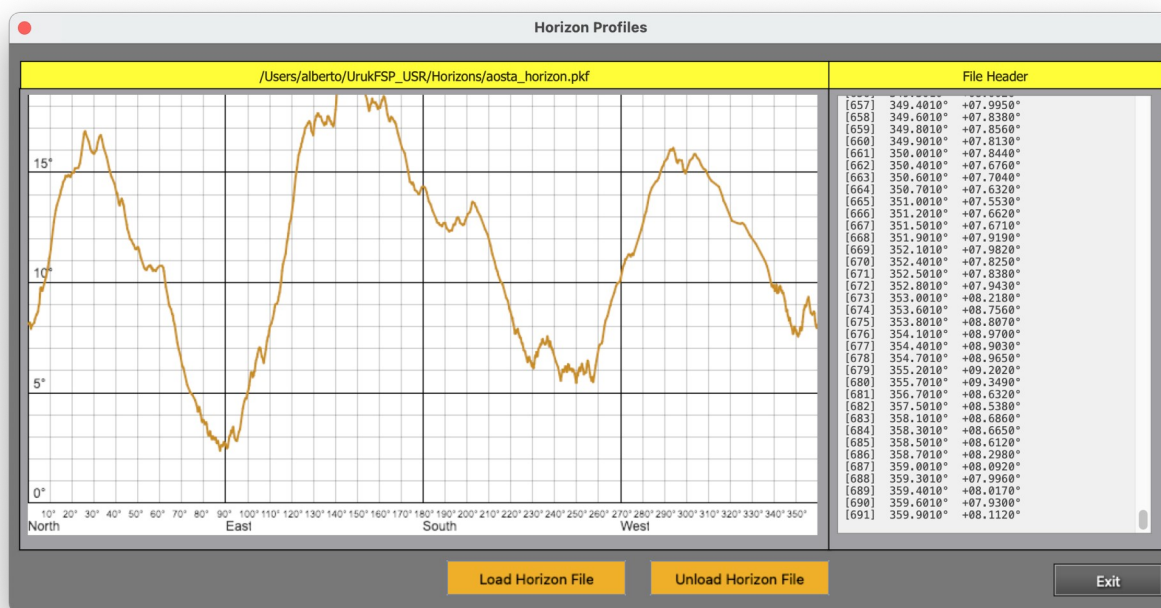Here, however, is the horizon profile from the PeakFinder website, shown in Image 4. There is no

Image 4

evidence of problems except that the file offers only 691 pairs of data, a resolution therefore rather lower than what appears on the web page of the site and also compared to what can be downloaded from HWT.