# What's New in Visualyse EPFD in 2022

Abstract: As we start the New Year, we look back at the old one, and in case you missed it, here are some of the new features we introduced in Visualyse EPFD during 2022.

## Introduction

Some of the features add to Visualyse EPFD include:

1. Inclusion of the Alpha Table methodology

2. Ability to run the software from the Command Line

3. Inclusion of a Long-term timestep option

4. New Notification Centre and Search Tool.

These are described further below. Full information including a complete list of new features is available from the Maintenance History document available from the Help Menu. We are already working on new features for 2023. If you have any suggestions or preferences for what we work on next, please send us an email.

## Inclusion of the Alpha Table methodology

The Visualyse EPFD software was updated with an implementation of the Alpha Table methodology, as described in document 4A/653. This allows users to specify a table as in the example below:

| Alpha Angle (deg) | Likelihood that an active non-GSO satellite will be operating with an $\alpha \leq \alpha_i$ |
|:---:|:---:|
| $\alpha_1 = 12$ | 0 |
| $\alpha_2 = 20$ | 0.1 |
| $\alpha_3 = 30$ | 0.25 |
| $\alpha_4 = 40$ | 0.4 |
| $\alpha_5 = 50$ | 0.55 |
| $\alpha_6 = 60$ | 0.7 |
| $\alpha_7 = 70$ | 0.85 |

This is then used in the EPFD (down) calculation to identify which satellites should be selected at each timestep. The table can be defined for a range of latitudes via an XML file, with format similar to the following:

```
<alpha_table latitude="-50">
<alpha_prob alpha_angle="22">0</alpha_prob>
<alpha_prob alpha_angle="25">0.036</alpha_prob>
<alpha_prob alpha_angle="30">0.102</alpha_prob>
<alpha_prob alpha_angle="35">0.176</alpha_prob>
…
```

The Alpha Table can be activated via the Additional Settings:
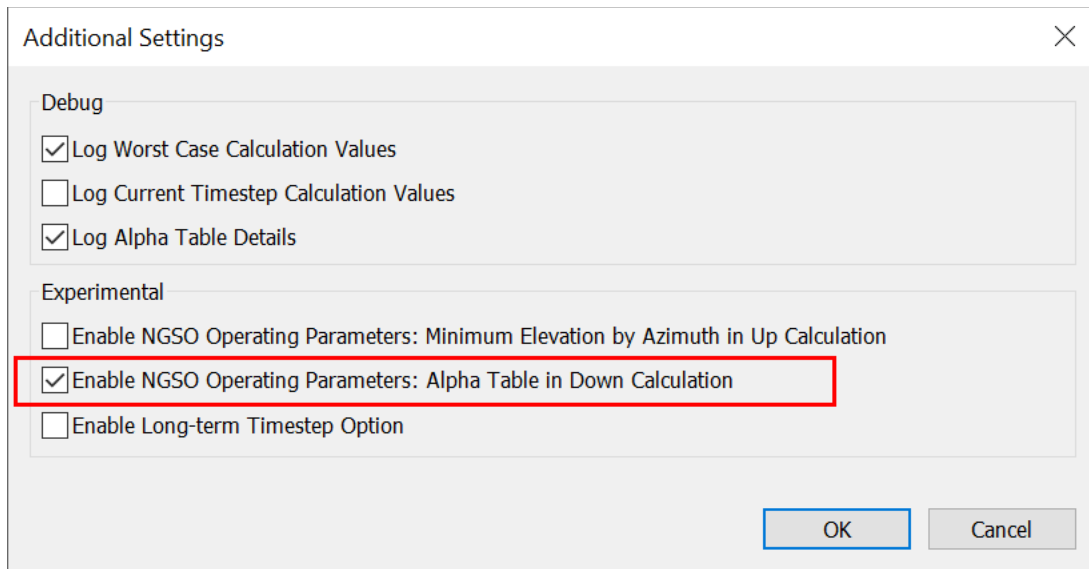


## Ability to run the software from the Command Line

To support batch runs of Visualyse EPFD, a set of command line options have been made available, including:

|  |  |
|---|---|
| --help produce help message | |
| --resultsDB **arg** | location of results database |
| --srsDB **arg** | location of SRS database |
| --masksDB **arg** | location of masks database |
| --ntc_id **arg** ` | ntc_id |
| --limitedRuns **arg** | only examine specified runs |
| --timeStepCalculation **arg** | (=0) Normal (0), TS1 (1), TS2 (2) |
| --analyticalAlpha **arg** | (=0) use analytical alpha calculation |
| --fixedWCGUp **arg** | fix UP WCG (ES Lat, ES Lon, GSO Lon) |
| --fixedWCGDown **arg** | fix DOWN WCG (ES Lat, ES Lon, GSO Lon) |
| --fixedWCGIS **arg** | fix IS WCG (ES Lat, ES Lon, GSO Lon) |
| --numHardwareThreads **arg** | number of hardware threads |

## Inclusion of a Long-term Timestep option

To support analysis that is only concerned with long-term statistics, a new timestep option has been included which is:

- Timestep size is increased by a factor of 100
- Number of timesteps is reduced by a factor of 100

This leaves the run duration unchanged and should give reliable statistics from 100% of time down to 0.1%.

## Include new Notification Centre and Search Tool

New features for the user interface in 2022 included a Notification Centre and search tool. The Notification Centre gives updates such as when a new version is available, and the Search Tool can be used to search the user interface for specific controls.

*Email us at info@transfinite.com for further information or to give your views on this Newsletter.*