# B Enumerations

## A.1 GeoDatum

Delft-FEWS may use a number of national coordinate system as geo-datum. These are referenced by all configurations requiring a definition of geodatum.

All coordinates are handled internally as WGS 1984 (longitude-latitude). To add a new coordinate system to Delft-FEWS, the transformation between WGS-1984 and that system will need to added as Java class to Delft-FEWS.

The lists of GeoDatum supported are (amongst many others):

+ **WGS 1984** (Geographic projection; longitude-latitude)
+ **SVY21** (Singapore)
+ **Ordnance Survey Great Britain 1936** (Great Britain)
+ **CH1903** (Switzerland)
+ **Rijks Driehoekstelsel** (The Netherlands)
+ **Gauss Krueger Austria M34** (Austria)
+ **Gauss Krueger Austria M31** (Austria)
+ **Gauss Krueger Meridian3** (Germany)
+ **TWD 1967** (Taiwan)

Plus other organisation specific coordinate conversions.

The user can also specify the UTM zone - this should be in the form UTM48N or UTM48S. The zones are shown below:
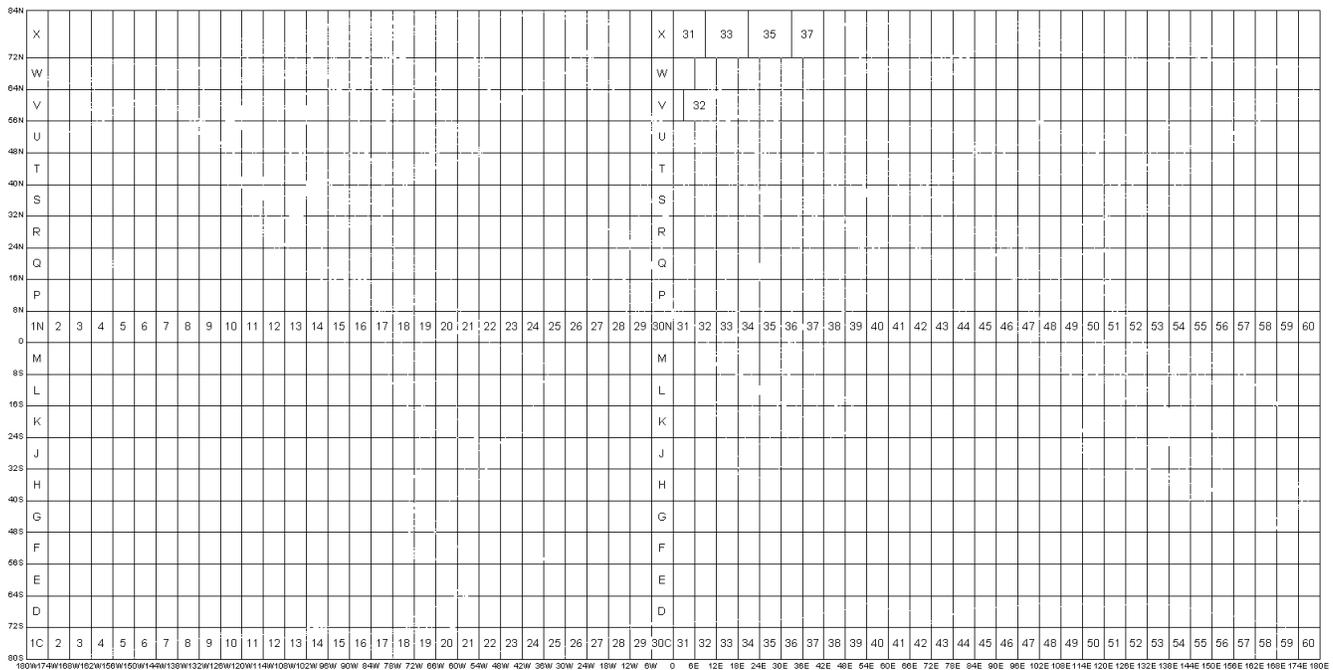


## A.2 Time Zones

Delft-FEWS supports a number of time zones:

| Name | Decription | GMT equivalent |
| --- | --- | --- |
| MIT | West Samoa Time | winter and summer:GMT-11 |
| HST | Hawaii Standard Time | winter and summer:GMT-10 |
| AST | Alaska Standard Time | winter:GMT-9 summer:GMT-8 |

| PST | Pacific Standard Time | winter:GMT-8 summer:GMT-7 |
|---|---|---|
| MST | Mountain Standard Time | winter and summer:GMT-7 |
| MST7MDT | Mountain Daylight Saving Time | winter: GMT-7 summer:GMT-6 |
| PNT | Mountain Standard Time | winter and summer:GMT-7 |
| CST | Central Standard Time | winter:GMT-6 summer:GMT-5 |
| EST | Eastern Standard Time | winter and summer:GMT-5 |
| IET | Eastern Standard Time | winter:GMT-5 summer:GMT-4 |
| PRT | Atlantic Standard Time | winter and summer:GMT-4 |
| CNT | Newfoundland Standard Time | winter:GMT-3:30 summer:GMT-2:30 |
| AGT | Argentine Time | winter:GMT-3 summer:GMT-2 |
| BET | Brasilia Time | winter:GMT-3 summer:GMT-2 |
| GMT/BST | UK British time | winter:GMT+0 summer:GMT+1 |
| WET | Western European Time | winter:GMT+0 summer:GMT+1 |
| CET | Central European Time | winter:GMT+1 summer:GMT+2 |
| MET | Middle Europe Time | winter:GMT+1 summer:GMT+2 |
| CAT | Central African Time | winter and summer:GMT+2 |
| EET | Eastern European Time | winter:GMT+2 summer:GMT+3 |
| EAT | Eastern African Time | winter and summer:GMT+3 |
| AZT | Azerbaijan Time | winter:GMT+4 summer:GMT+5 |
| NET | Armenia Time | winter:GMT+4 summer:GMT+5 |
| PLT | Pakistan Time | winter and summer:GMT+5 |
| IST | India Standard Time | winter and summer:GMT+5:30 |
| BST | Bangladesh Time | winter and summer:GMT+6 |
| VST | Indochina Time | winter and summer:GMT+7 |
| PRC | China Standard Time | winter and summer:GMT+8 |
| JST | Japan Standard Time | winter and summer:GMT+9 |
| ROK | Korea Standard Time | winter and summer:GMT+9 |
| ACT | Australia Central Time (Northern Territory) | winter and summer:GMT+9:30 |
| AET | Australia Eastern Time (New South Wales) | winter:GMT+10 summer:GMT+11 |
| AWT | Australia Western Time | winter:GMT+8 summer:GMT+9 |
| ACST | Australia Standard Central Standard Time | winter and summer GMT+9:30 |
| AEST | Australia Eastern Standard Time | winter and summer GMT+10 |
| SST | Solomon Is. Time | winter and summer:GMT+11 |
| NST | New Zealand Standard Time | winter:GMT+12 summer:GMT+13 |

You can now specify any timezone in relation to GMT e.g.

```
<timeZone>
     <timeZoneName>GMT+9</timeZoneName>
</timeZone>
```

## A.3 Units

Delft-FEWS supports a list of units. Most of these are SI units.

| Unit | Description |
|---|---|
| m | Metres |
| mm | Millimetres |
| m3/s | Cubic meters per second |
| oC | Degrees Centigraed |
| mm/hr | Millimetres per hour |
| % | Percentage |
| g | |
| s | |
| degrees | Degrees (directional) |
| Bft | Beaufort |
| m/s | Metres per second |
| - | Dimensionless |
| W/m2 | Watts per metre squared |

## A.4 Data quality flags

Quality flags are constructed on a philosophy of two qualifiers. The first describes the origin of the data and the second the quality.

Possible origins of data are:

+ Original: This entails the data value is the original value. It has not been amended by DELFT-FEWS
+ Completed: This entails the original value was missing and was replaced by a non-missing value.
+ Corrected: This entails the original value was replaced with another non-missing value.

Possible qualifiers are:

+ Reliable: Data is reliable and valid
+ Doubtful: The validity of the data value is uncertain
+ Unreliable: The data value is unreliable and cannot be used.

Following this specification, the table below gives an overview of quality flag enumerations

Table 1          Enumeration of quality flags

| Enumeration | Description |
|---|---|
| 0 | Original/Reliable<br>The data value is the original value retrieved from an external source and it successfully passes all validation criteria set. |
| 1 | Corrected/Reliable<br>The original value was removed and corrected. Correction may be through interpolation or manual editing. |
| 2 | Completed/Reliable<br>Original value was missing. Value has been filled in through interpolation, transformation (e.g. stage discharge) or a model. |
| 3 | Original/Doubtful<br>Observed value retrieved from external data source. Value is valid, but marked as suspect due to soft validation limits being exceeded. |
| 4 | Corrected/Doubtful<br>The original value was removed and corrected. However, the corrected value is doubtful due to validation limits. |
| 5 | Completed/Doubtful<br>Original value was missing. Value has been filled in as above, but resulting value is doubtful due to limits in transformation/interpolation or input value used for transformation being doubtful. |
| 6 | Original/Unreliable<br>Observed value retrieved from external data source. Value is invalid due to validation limits set. Value is marked as unreliable and will not be used in transformations and model calculations. |
| 7 | Corrected/Unreliable<br>The original value was removed and corrected. However, corrected value is unreliable |

| 8 | Completed/Unreliable<br>Original value was missing. Value has been filled in as above, but resulting value is unreliable, |
|---|---|
| 9 | Missing value in originally observed series. Note this is a special form of  both Original/Unreliable and Original/Reliable. |

Notes:

- No difference is made between historic and forecast data. This is not considered a quality flag. The data model of Delft-FEWS is constructed such that this difference is inherent to the time series type definition.

## A.5 Synchronisation Levels

To allow optimisation of data flows in Delft-FEWS when set-up in a distributed environment, synchronisation levels (synchLevels) can be defined. SynchLevels are arbitrary (integer) numbers that are used in the software to select which data is synchronized from a MC, either in the MC-MC synchronisation, or to a synchronising client or when creating a database replica. The behaviour of each synch level is determined through the configuration of the synchronisation channels and synchronisation profiles. When required, additional synchronisation levels can be added to further refine the synchronisation process. Since neither a Stand alone Client or a Direct Database Access client use synchronisation, synchLevels in these components are not of less importance (except for synchLevels 5, 9, 90-100). Still, conforming to the convention will make it easier to setup a synchronising client later and allow for standard behaviour when creating a replica. The current convention is:

| synchLevel | description | application |
|---|---|---|
| 0 | All (scalar) data from a forecast run. Since 2012.02 this is the default for simulated. Before 2012.02 this synch level was used as default for all types | all systems |
| 1 | Scalar time series imported from telemetry. Since 2012.02 this is the default for external timeseries. NB the length of data synchronised will depend on the login-profile selected. Typically this will be data generated up to 7 days ago | all systems |
| 2 | All grid data from a forecast run (e.g. Flood Mapping results) | all systems |
| 3 | Large volumes of scalar data such as CatAvg data (forecasts, actuals & NWP) | all systems |
| 4 | Used for data imported infrequently such as Astronomical or Climatological data | all systems |
| 5 | Data edited on OC. Since 2012.02 this synch level is automatically used on OC. Configuration no longer required. | all systems |
| 6 | (small) Grid data imported from external forecast (synchronised to OC) | all systems |
| 7 | Grid data imported from external forecast (synchronised to FSS & MC only, and not to OC) | all systems |
| 8 | Performance indicator time series. These are time series that do not need to be synchronised with a short synchronisation interval or when a forecaster logs in with a minimum profile. | all systems |
| 9 | Temporary time series not requiring synchronisation. This synch level is automatically used for time series type temporary | all systems |
| 11 | Specific ModuleDataset files, which should be downloaded and activated directly after logging in and after each upload of a new version of the file (synch to OC). This is used in the Configuration manager when uploading the module dataset | most systems |
| 16 | (large) Grid data imported from external forecast (synch. to OC) | NFFS: to distinguish between small (synchLevel 6) and large grids |
| 20 | WarmStates (to be specified if there is need to synch to OC - needed for local runs in IFD) | all systems |
| 21 | Aggregated grids (flows/heads) *forecasts* | used in NGMS |
| 22 | Grids data (heads) *timeseries* | used in NGMS |
| 23 | Grids data (flows) *timeseries* | used in NGMS |
| 30 | Timeseries modifiers | used in CHPS (NWS) |
| 90-100 | Reserved | used internally |