

## General instructions for data submission

The collection is structured in order to only include cell anatomical or wood density data that are spatial-, chrono-, and geo-referenced, i.e.; only intra-ring measurements that have been obtained from dated annual rings (possibly along series of tree-rings), and from plants material collected from known locations.

Consequently, a dataset usually includes the measurements of wood anatomical features as characterized from a wood cross-section (**XCELL data files**) and is accompanied by metadata describing the characteristics of both the site and trees surveyed (**XCELL metatadata file**).

## Instructions for XCell data

### What data?

In general the cell anatomical characterizations within the annual rings are obtained by means of image analysis of wood cross-sections (Fig. 1) by either selecting the cells along radial files (ROW; only for conifers, or by including all cells within a given tree-ring area (AREA). The collection can also include integrated measurements from a tangential window of defined dimensions moving across growth rings (BAND) as for example those obtained from SilviScan technology or from methods assessing wood density profiles (e.g.; with radiodensitometry) and reflected light measurements. Moreover, to maintain the possibility to perform analyses at intra-annual resolution, the measurements should include information about their position along the ring. Thus, each measured object (cell) is characterized by an identifier (object number, calendar year, and tree label), has information on the position along the ring, and includes a list of several measures.

### How to submit

1) Create a txt (or csv) file with a row for each cell. The columns should include the Cell ID, the location (coordinates) and the measurements. See the examples

attached for Roxas, WinCell, ... in the specific example sheets with clear interpretable column names

2) Name the file as: "C-Full site Code". Example: C-CH-LTAL\_S22.txt

[C: Cell Anatomy - CH: country code - LTAL\_S22: short site code]

You can also submit a file for each single tree

3) Send the files (together with the metadata file) to [patrick.fonti@wsl.ch](mailto:patrick.fonti@wsl.ch)

## Instructions for Metadata

### What data?

The metadata consists of all information necessary to understand the anatomical data. This comprises information such as location (e.g.; site name, country, latitude and longitude, elevation), site and tree characteristics (e.g.; site conditions, forest type, species, number of trees sampled, tree size), sample materials (e.g.; organ, number of samples, annual rings, period), measurement system (e.g.; devices, software, magnification, image identifier, resolution and size), anatomical metrics with measurement unit, details of the principal investigators (e.g. name, address), and related publications. Local site specific and climatic data (e.g. daily or monthly temperature, soil moisture) are not mandatory, yet valuable to be collected if available.

### How to submit

1) Download the Metadata template (xls)

2) Fill the information in the sheets "General" and "TreeTable"

-> Leave cell empty if no information is available

-> Please add remarks to explain peculiar cases

3) Save with file name: XC-Site Code. Example: XC-CH-LTAL\_S22.xlsx

[XC: Xcell metadata - CH: country code - LTAL\_S22: site code]

4) Send the files (together with the data files) to [patrick.fonti@wsl.ch](mailto:patrick.fonti@wsl.ch)