

## METADATA:

All of the shapefiles have the following coordinate systems:

Projected Coordinate System: ETRS\_1989\_UTM\_Zone\_30N

Projection: Transverse\_Mercator

False\_Easting: 500000.00000000

False\_Northing: 0.00000000

Central\_Meridian: -3.00000000

Scale\_Factor: 0.99960000

Latitude\_Of\_Origin: 0.00000000

Linear Unit: Meter

Geographic Coordinate System: GCS\_ETRS\_1989

Datum: D\_ETRS\_1989

Prime Meridian: Greenwich

Angular Unit: Degree

File: GPS\_aoi.shp

The aoi for the calibration area. This area has been defined based on topographical calibration data availability from March 2013 and June 2013 at Rambla de la Viuda, Spain.

File: ibl2012sma.shp

The initial topography created with the Delft-3D FLOW software. The file has been created by exporting the Delft3D geometry into shapefile format. The data includes the 2012 March geometry, which has been produced based on the MLS data gathered at Rambla de la Viuda, Spain. The data covers the whole simulation area. ibl=initial bed level, sma=small (was cut to cover the simulation area).

File: Viuda\_spring2013\_laser\_bat\_initialbedlevel\_GPSaoi.shp

The grid-form geometry of June 2013, i.e. the final verification topography after the two floods, was defined in Delft3D-FLOW model by adding first the laser scanning data set, which had been processed to include both backpack and car MLS data, to the grid cells. Then the 2009 DEM was added to the grid to cover the higher bank areas. The topography has been then exported into

shapefile format. However, only the calibration area has the best topography and therefore the data has been cut with the GPS\_aoi.shp.

File: Viuda D50 2014.shp

The file consists of polygons, which have been assigned a D50 values. The grain size values were assigned to equivalent morphological elements defined in the geomorphological map. For the model, these grain sizes were transferred to each cell of the curvilinear morphodynamic model's grid. Different input grain size distributions were applied in the model: 1) spatially varying upper layer grain sizes (column: D50\_m\_sup), 2) spatially varying sublayer grain sizes (column: D50\_m\_sub). The roughness analyses and definition of Manning's n values were later also done in Delft3D model based on these D50 grain sizes.