**RESULTS OF THE ANALYSIS USING SHOREX**

1. **Folder structure.**

Data are stored into a structure of folders as follows:

* Site name
* Sea contour level taken as reference (MHWS and MSL(0))
* Image dates filtered by a sea level threshold (only in Truc Vert: MSL >= 0.2)
* Shorelines in shapefile format

As an example, the following image shows the folders for Duck and Truc Vert:

Texto

Descripción generada automáticamenteTexto

Descripción generada automáticamente

1. **Processing**

SHOREX works as a suite of separated tools which carry out the different steps of the shoreline extraction:

* Image downloading from GEE (inputs: date range, sensor, bands to be downloaded: RGB for subpixel georeferencing, AWEInsh water index for shoreline extraction at pixel level and SWIR1 for shoreline extraction at subpixel level).
* Cloud filtering. SHOREX has a dedicated tool to visualize each RGB image to ensure that the area of analysis (and the area which will be used for subpixel georeferencing) are free of clouds.
* Image subpixel georeferencing. For this task we need an orthophotography of high resolution covering a region close to the beach segment to be analysed. This can be problematic in the case of areas located on narrow sandy barriers.
* Shoreline extraction at pixel level. For this task we use the AWEInsh water index with the threshold 0 to distinguish between the water and the land.
* Shoreline extraction at subpixel level. Considering the shoreline at pixel level and the SWIR1 band, we perform a kernel analysis to determine the inflection points inside the surface of the SWIR1 kernel values (Laplacian operator equals to 0).

To conclude this section, we have to say that only those images coincident in time with the profiles have been processed. Among them, we only have processed the images free of clouds with a maximum offset of 10 days with respect to the date in which the profiles were acquired.

1. Results

Next table and figures present the results obtained when carrying out the accuracy assessment. They are grouped showing the bias, standard deviation and RMSE for each study site, both considering raw data and the tidally corrected. As suggested, the columns on the right show the results for Truc Vert when discarding the images acquired during low tide.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | **All dates** | | **Filtered (MSL >= 0.2)** | |
| **Site** | **Slope / MHWS** | **Raw** | **Tidally corrected** | **Raw** | **Tidally corrected** |
| Duck | 0.1/0.585 | 2.6±8.4 (8.8) | -3.2±8.0 (8,6) | - | - |
| Narrabeen | 0.1/ 0.7 | 10.1±10.0 (14.2) | 4.2±9.7 (10.5) | - | - |
| Torrey Pines | 0.045/1.566 | 10.7±11.0 (15.3) | -4.7±15.3 (16.0) | - | - |
| Truc Vert | 0.05/1.5 | 1.0±26.3 (26.3) | -31.3±29.1 (42.7) | 2.0±24.2 (24.3) | -13.6±24.7 (28.2) |

Gráfico, Gráfico de cajas y bigotes

Descripción generada automáticamente

Gráfico, Histograma

Descripción generada automáticamente

Gráfico, Gráfico de cajas y bigotes

Descripción generada automáticamente

Gráfico, Gráfico de cajas y bigotes

Descripción generada automáticamente