# Obtain long term satellite data

Solcast data from 2007 to 2021

# Obtain short term ground measurement data

Check with SunCable

# Compare ground measurement data with satellite data for the intersection (i.e., ground measurement period)

Estimated MBE, RMSE etc. for all data, yearly, monthly etc.

Also estimate errors for different time resolutions (hourly, daily, monthly etc.)

# Based on the comparison stage (3), apply correction method on the long-term data (to make sure satellite data is more representative of the exact site measurements)

* Linear adaptation (MBD correction from the long-term dataset)
  + Can be applied for each season/month separately based on each season /month’s MBD.
* Feature transformation
  + Uses properties of the cumulative distribution function of the on-site ground measurements and **transfers them via look-up tables** to the satellite derived time series.

# How to calculate interannual variability

Create a TMY file for the P50 estimate

Create multiple AMY files to calculate P90, Pxx statistics

Calculate monthly statistics and interannual variability

# Total uncertainty

The total uncertainty of the solar resource estimate is dependent on:

* The uncertainty of the satellite model including the uncertainty due to the ground measurements,
* The uncertainty due to inter-annual variability

**The total uncertainty of the solar resource estimate is:**

Chart, diagram

Description automatically generated with medium confidence

For an energy production assessment, you also need to account for uncertainty in **loss assumptions and the inherent uncertainty of the energy model.**

Table

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**Check case study 1 from D. Thevenard and S Pelland Solar Energy 2013 (page 81 of Jessie’s lecture notes in 3.2 Bankable data sets)**

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