

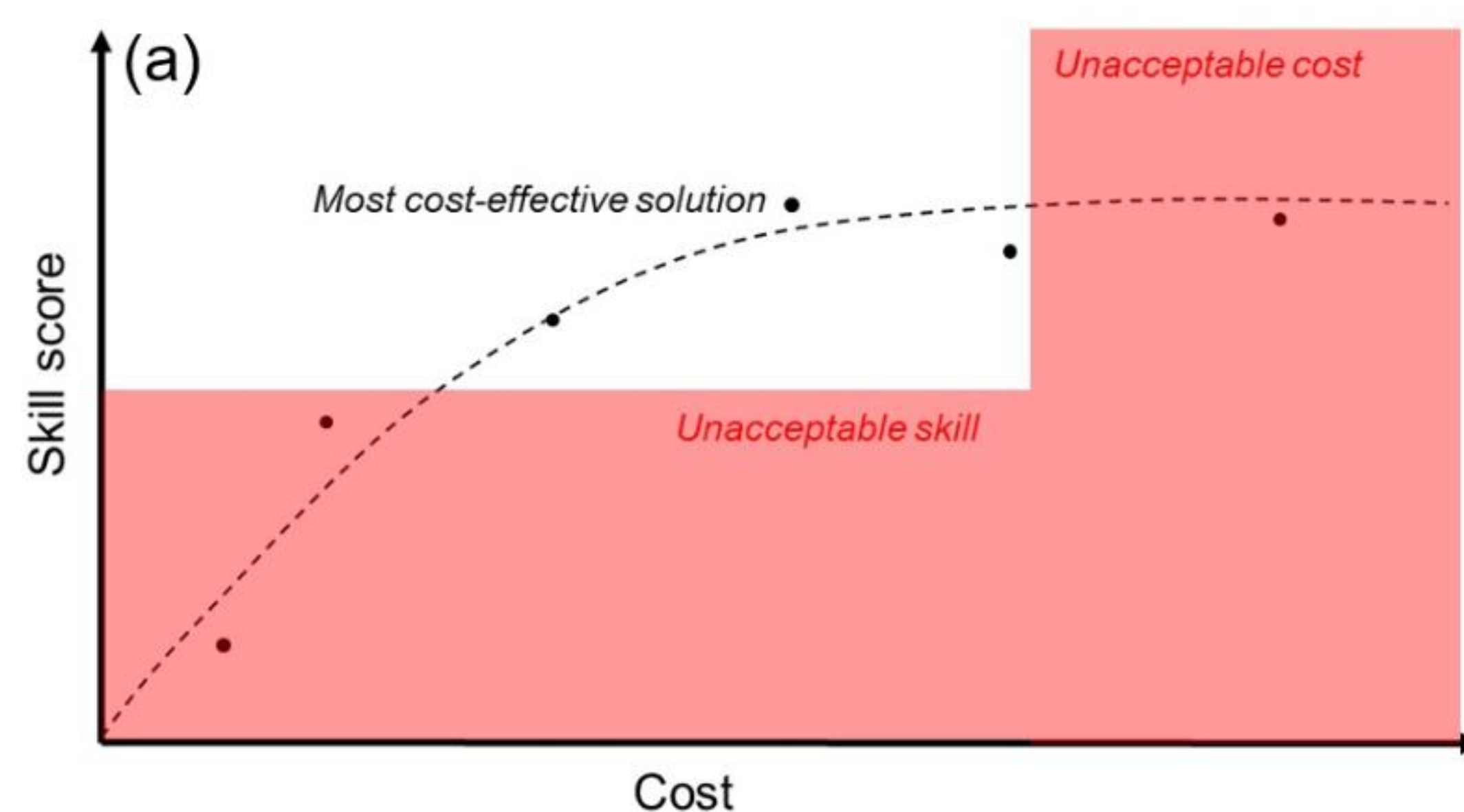
1. BACKGROUND

- The accuracy of the estimation of the wind resource has an enormous effect on the expected rate of return of a project.
- For a given project, the modeller is faced with a difficult choice of a wide range of simulation tools with varying accuracies and costs.
- Previous work: new method for estimating the skill and cost scores of different wind modelling tools for a given project has been developed → further studies required.

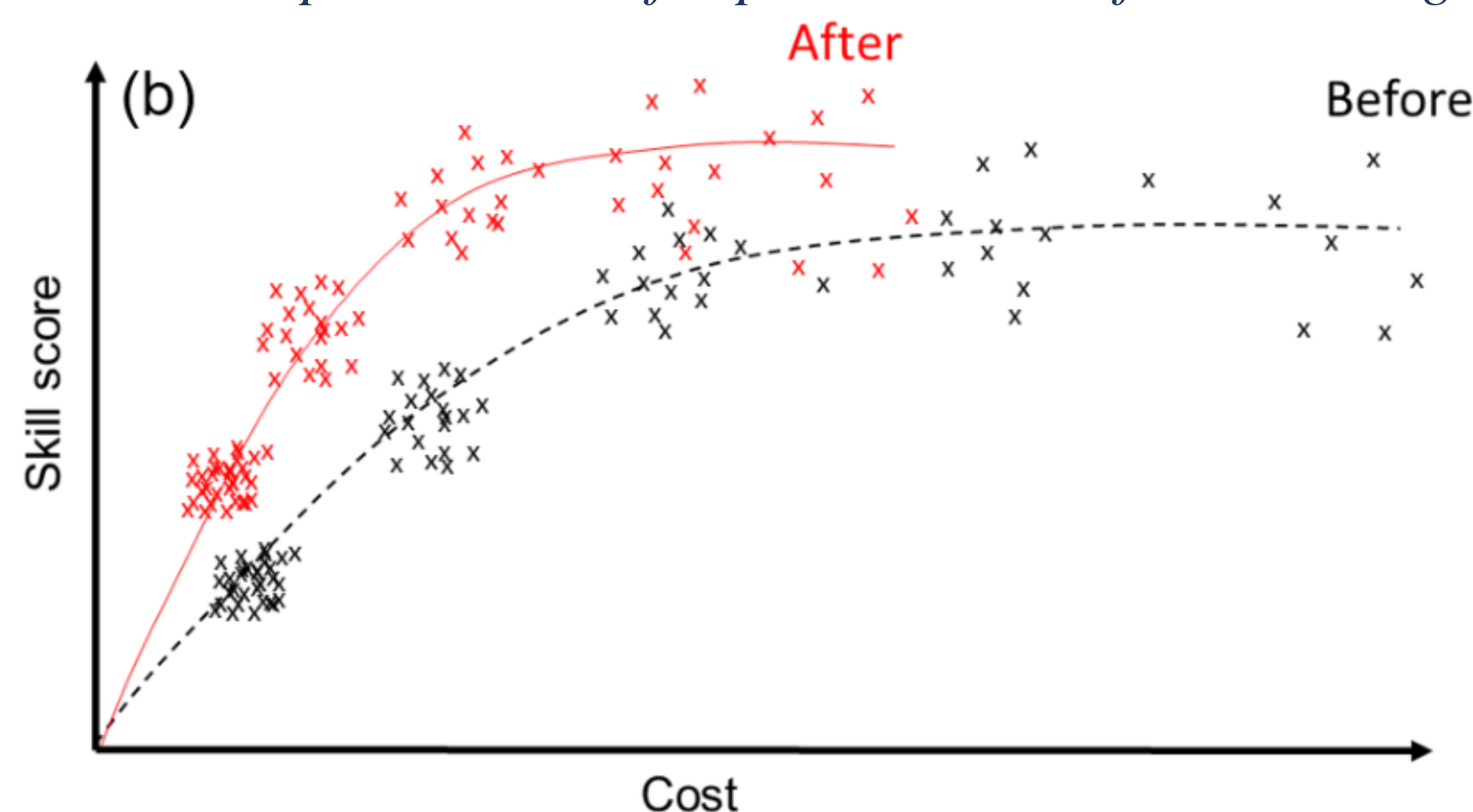
2. GOAL

- Design a new simulation challenge with the aim of collecting comparison metrics data regarding the skill and cost scores of a range of different simulation tools for a complex terrain site, both before and after carrying out the simulations.

Expected skill score against cost score for an example wind energy project



Schematic representation of expected results of the challenge



3. METHOD

- Define the challenge goal.
- Identification of a suitable site.
- Definition and preparation of input and validation data sets.
- Developed of a process allowing participants to enter their results both for predicted and actual cost and skill scores,
- Definition of the data to be submitted by the participants.
- Choice of data format and storage platform.

4. CHALLENGE GOAL

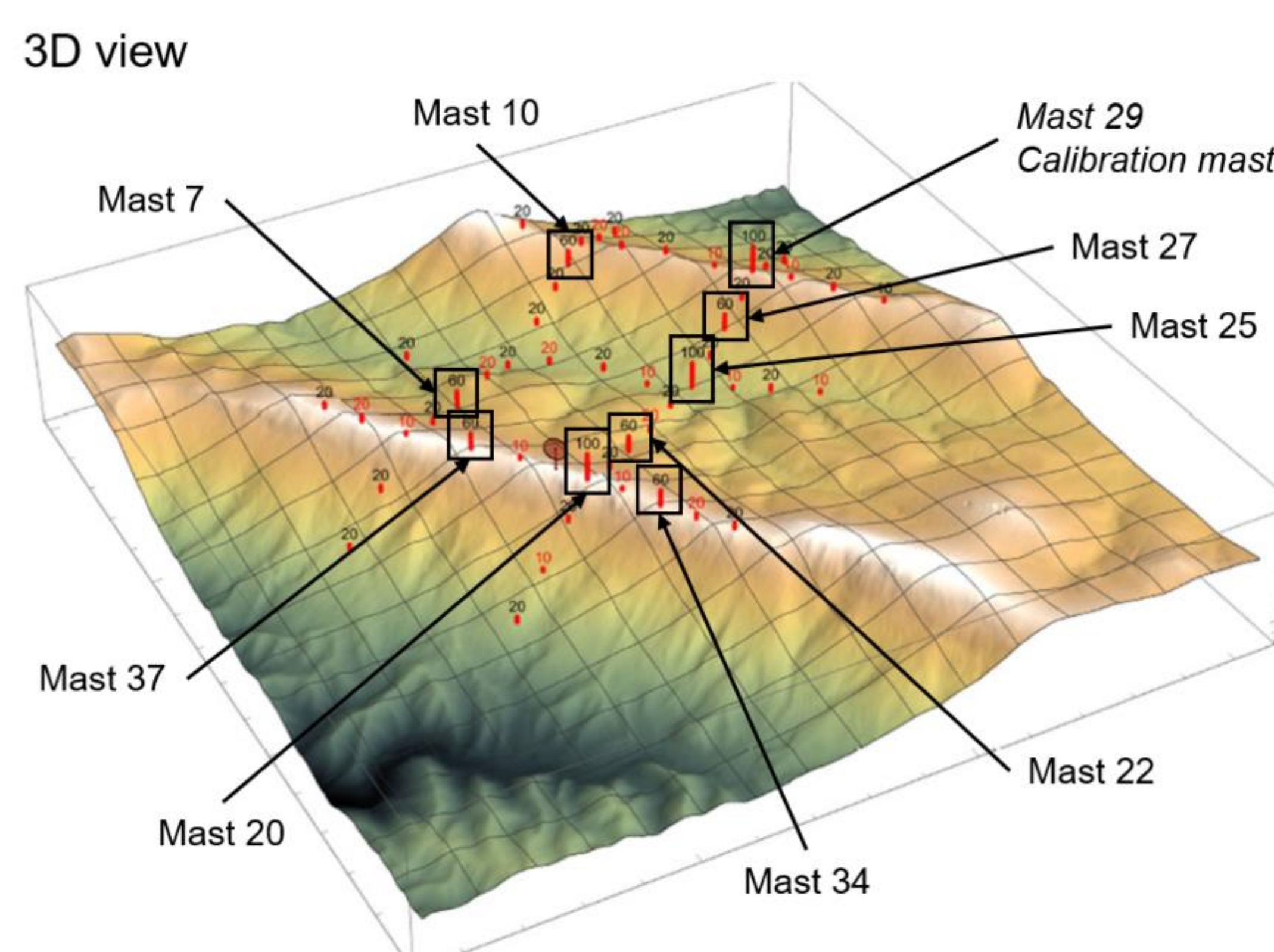
- The goal of Stage 1 of this challenge is to collect comparison metrics data regarding the skill and cost scores of a range of different simulation tools for a complex terrain site, both before and after carrying out new simulations.

5. DEFINITION OF SUITABLE SITE

Perdigão site in Portugal:

- Large volume and good quality of available measurement data.
- Complex terrain (ridges, acceleration of wind, flow separation ...).

3D representation of the Perdigão site



6. INPUT AND VALIDATION DATA

- Calibration data: met mast 29.
- Validation data (provided after challenge close): eight measurement masts.
- Other data provided:
 - Topography and roughness maps.
 - Description and set-up of measurement equipment.
 - Wind turbine height, coordinates and power curve.

7. PROCESS FOR ENTERING COMPARISON METRICS

Google Forms:

- Registration including confidentiality and sharing choices.
- Model description.
- Estimation of skill and cost scores before carrying out simulations.
- Estimation of cost scores after carrying out simulations.

8. SUBMITTED DATA

- Google Forms as described above.
- 3D wind vector components of averaged vertical wind speed profiles for each 30° wind direction sector at:
 - each validation met mast,
 - the wind turbine location.
- Calculated AEP in each sector.
- Horizontal planes of 3D wind speed vectors at 40 m and 100 m above ground.
- Vertical planes through each validation met mast in the SW direction.

Sign up here now:

<https://86.50.166.74/records/b56506580>

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Deadline extended to 31.12.2020!!