

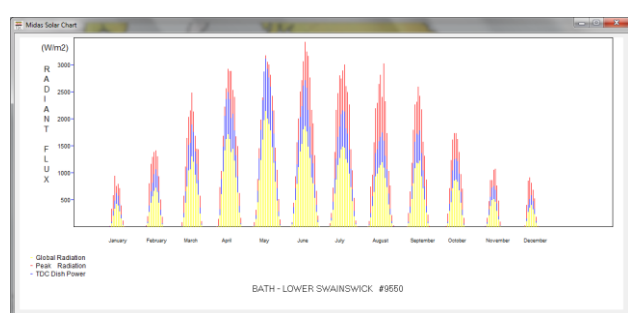


University of
BRISTOL

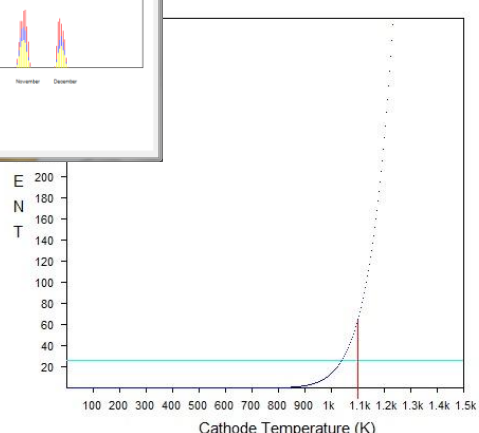
Thermionic Diamond Convertor System Modelling

The TDC Device Model has been completed and used extensively in the design of the first packaged TDC & Solar Concentrator designs now moving forward to on sun trials [WP4].

The device modelling provides a framework to handle electron reflection effects, thermal dynamics, temperature dependent work functions and electrode patch effects through the use of computed average transmission coefficients. Kelvin Probe, SPM emitter/collector measurements and DFT analysis will provide estimates of the effective transmission coefficients to improve the TDC model.



TDC CURRENT/ VOLTAGE
64.60 A
Operating 0.28 V Open Circuit 1.49 V

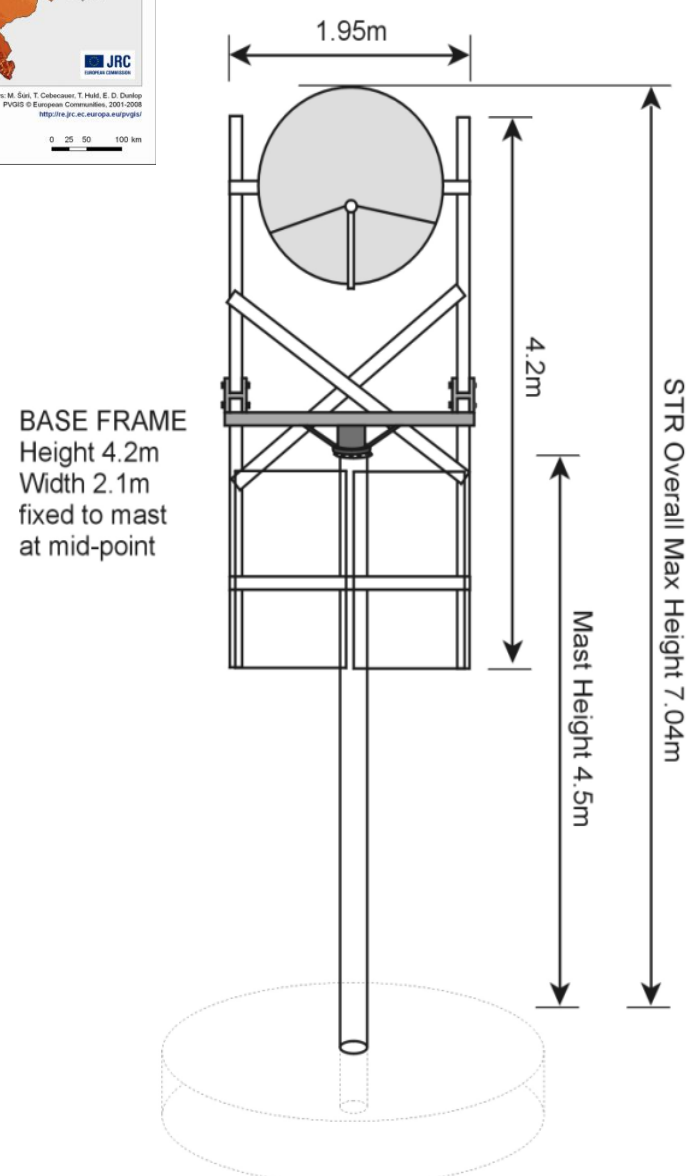
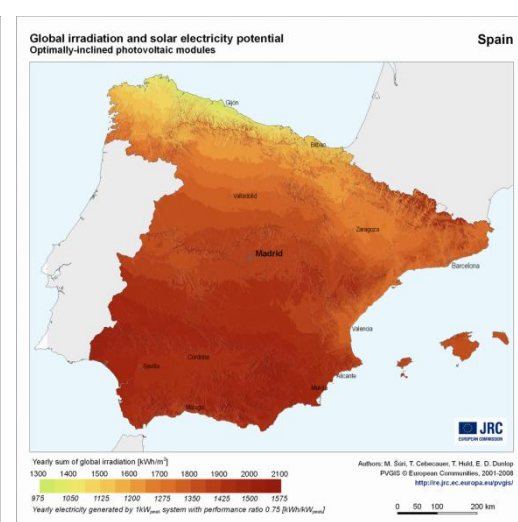
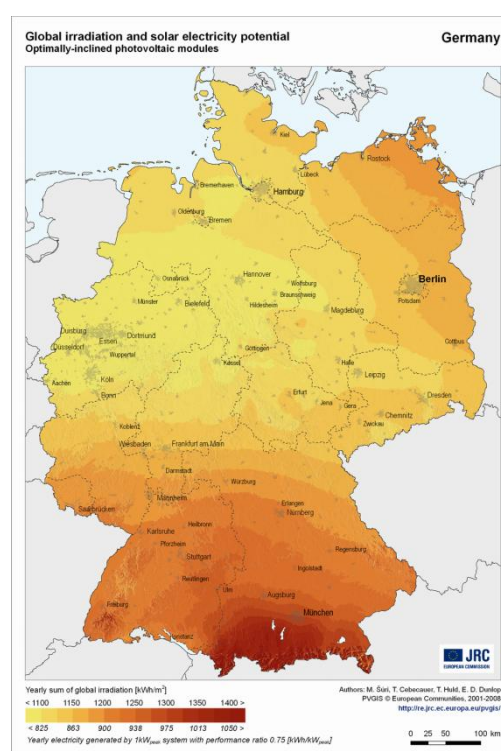
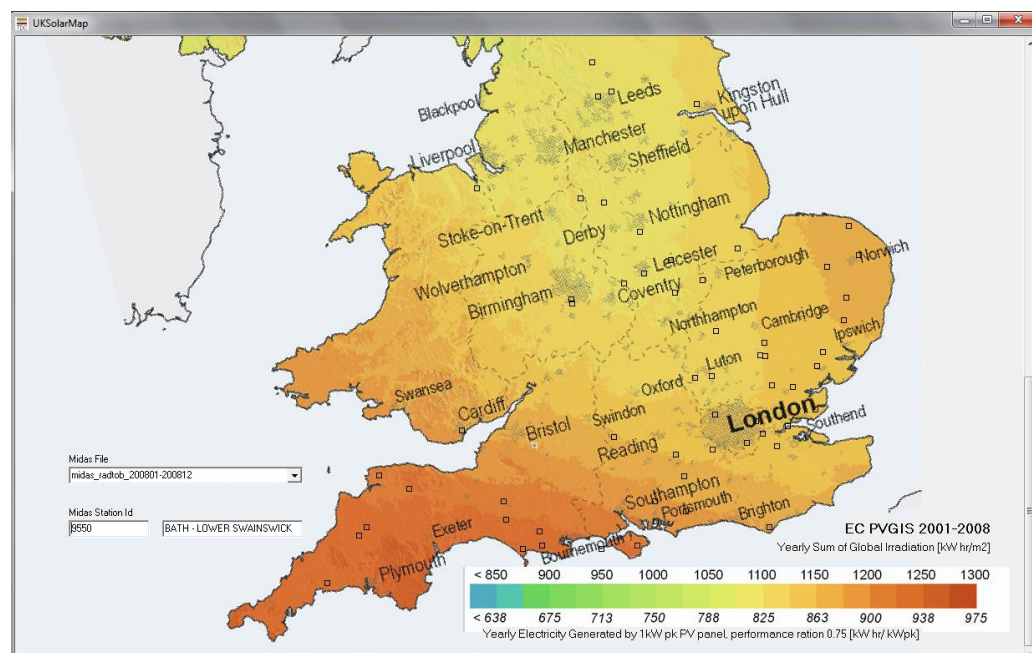


e-on
Research Initiative

System modelling has been updated to include three years of UK global radiation from the Met Office Midas Datasets, these have been superimposed on the EC PVGIS Global Yearly Irradiation [kW hr/m²]. The estimated CSP performance line takes into account measured losses of the reflective film, TDC device glass transmission loss and absorber efficiency. Combining the modelling with Sun Trials data from WP4 will enable estimates of power generation and capacity in any location in Europe given radiant flux and direct insolation.

Milestone 4: Solar Test Rig (STR)

Design and Construction of a Solar Test Rig, comprising of a high precision dual axis sun tracker, fitted with 400Wpk photovoltaic panels and a dish solar concentrator.



Solar Test Rig - Detail

Comprising of DEGER 3000NT dual axis solar tracker, 2 Kyocera 210Wpk Photovoltaic Panels (1.5m x 1m) Solar Dish Concentrator (1.5m diameter)