

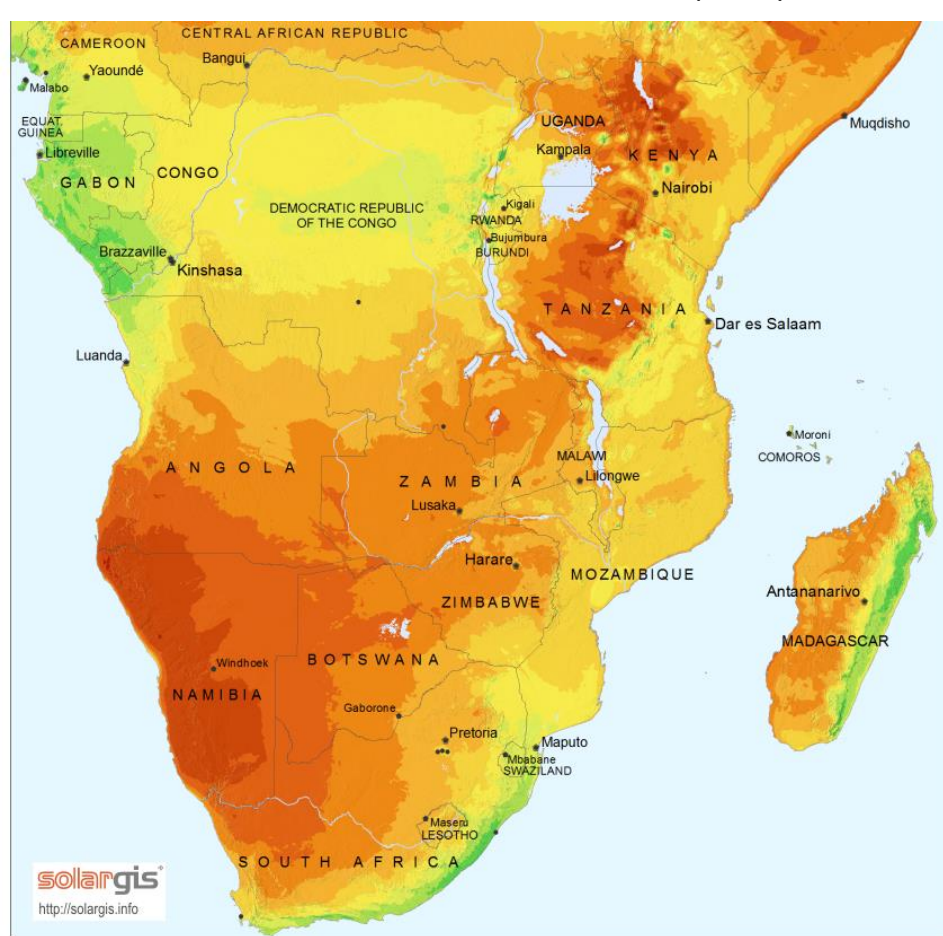
# DNI data and map projects in Southern and Eastern Africa

**Riaan Meyer**  
**CEO, GeoSUN Africa**



# GHI applies to PV

Global Horizontal Irradiance (GHI)



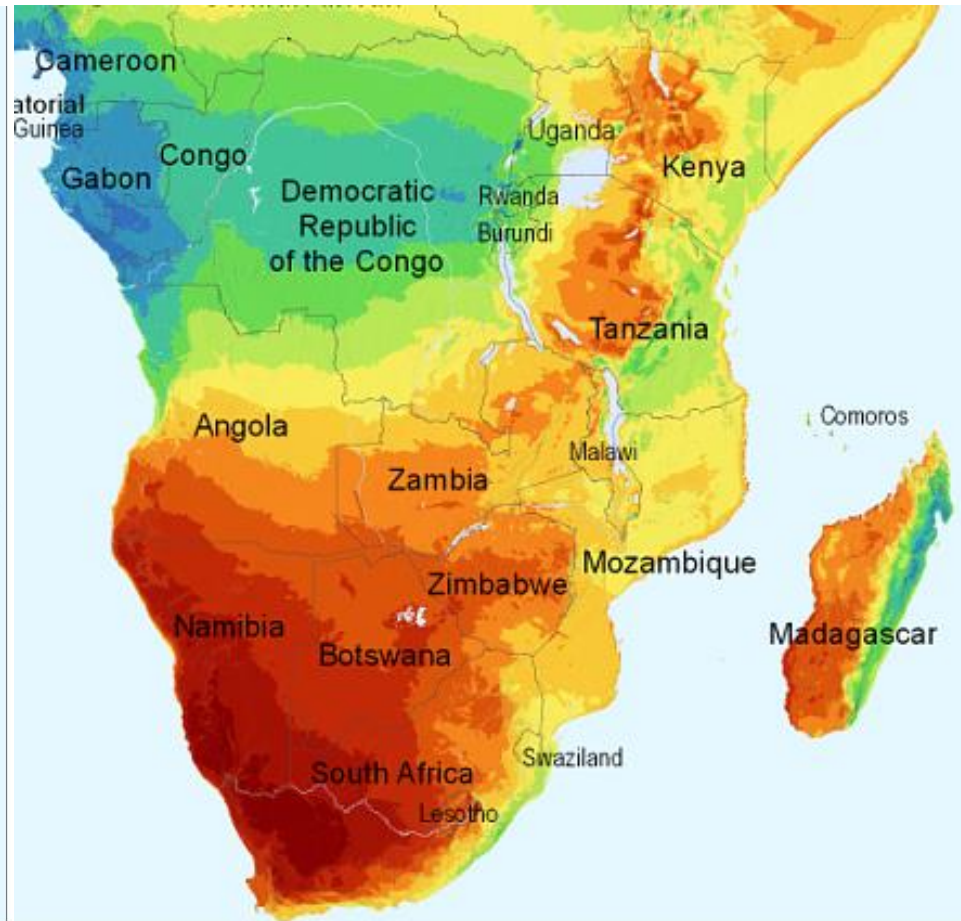
Average annual sum (1994-2010)



2012 GeoModel Solar s.r.o.

# DNI applies to CSP (and also CPV)

Direct Normal Irradiance (DNI)



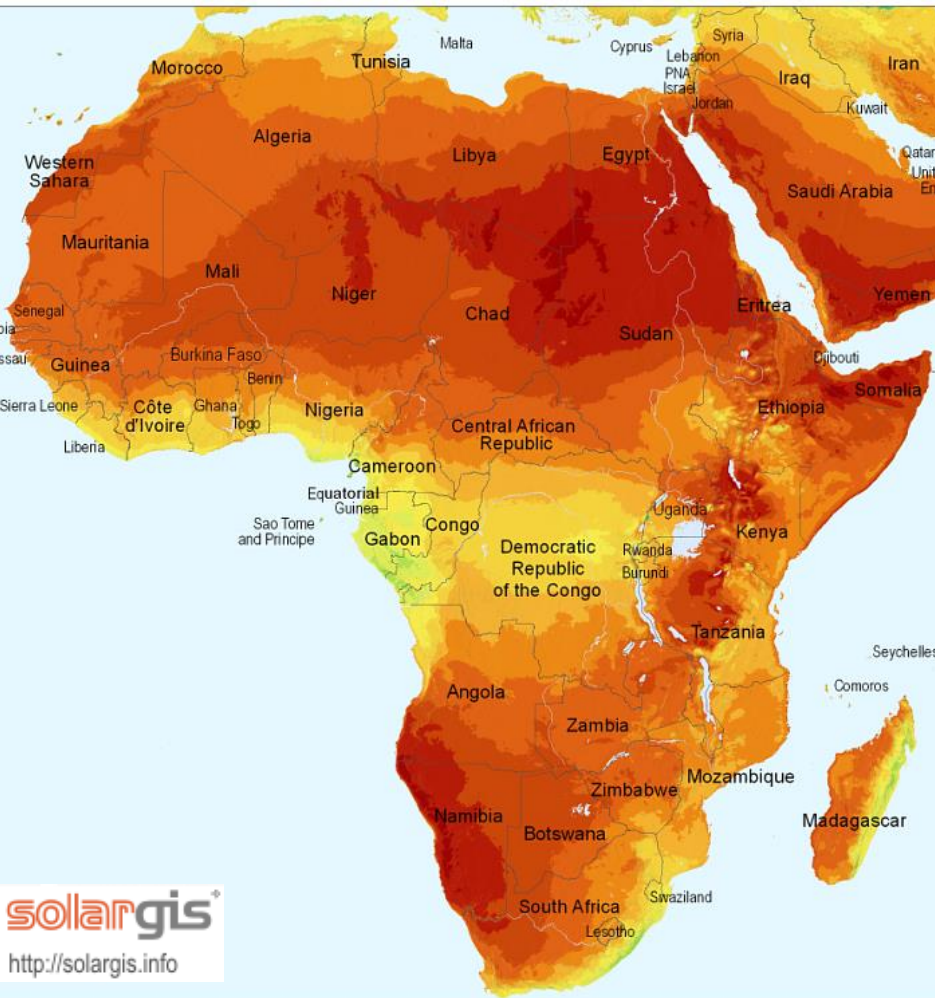
Average annual sum (4/2004 - 3/2010)



0   500 km

# GHI applies to PV

Global Horizontal Irradiance (GHI)

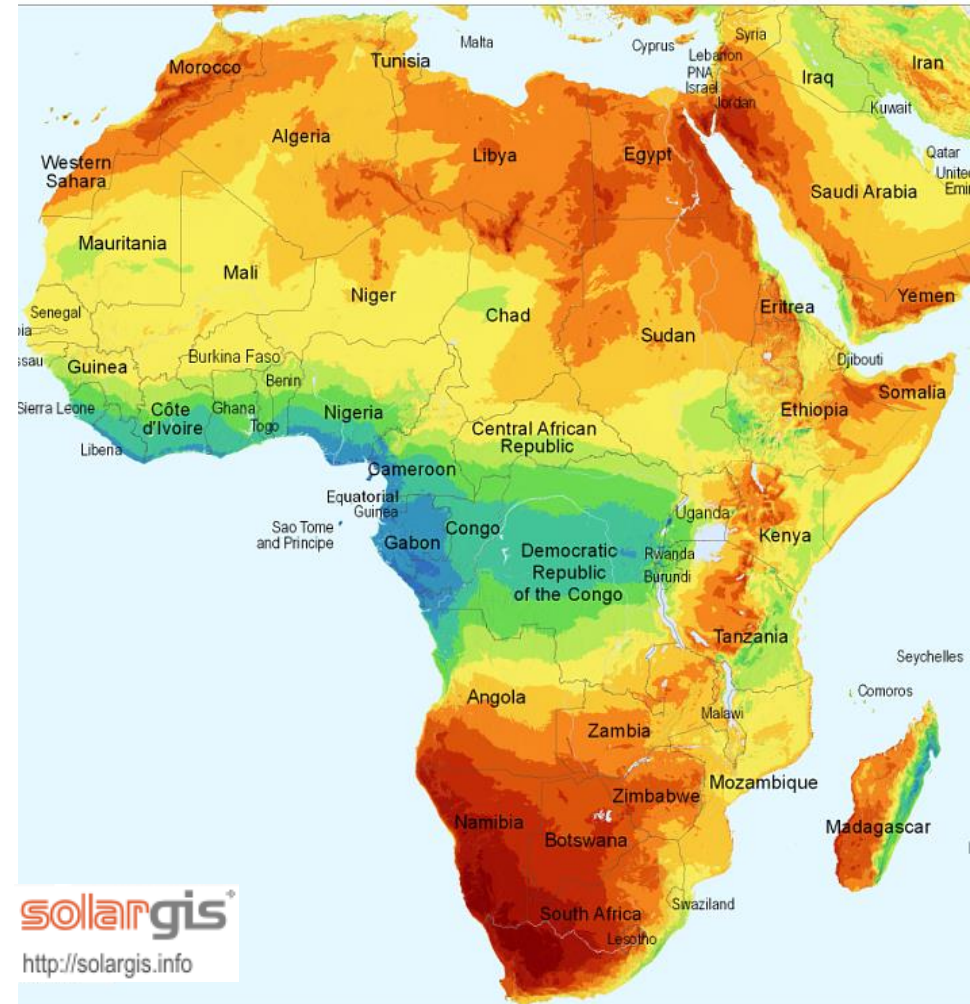


Average annual sum (4/2004 - 3/2010)

< 1600 1800 2000 2200 2400 > kWh/m<sup>2</sup>

# DNI applies to CPV (and also CSP)

Direct Normal Irradiance (DNI)

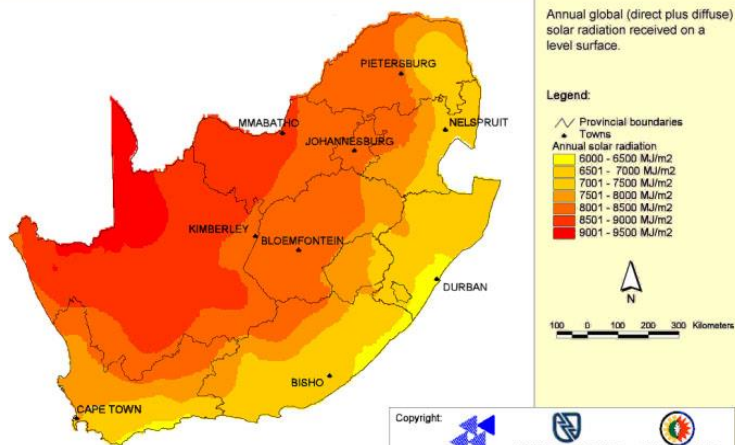


Average annual sum (4/2004 - 3/2010)

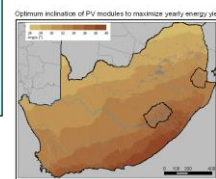
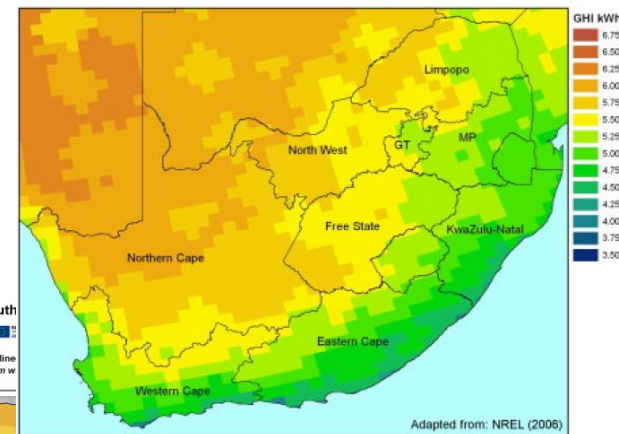
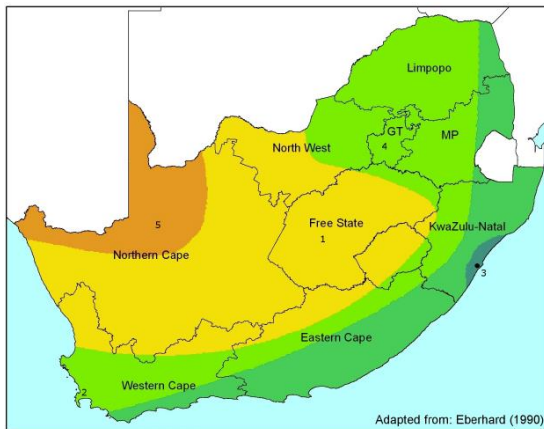
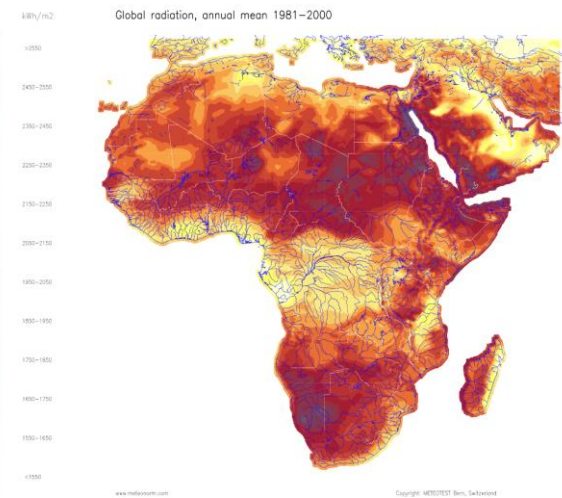
< 800 1200 1600 2000 2400 2800 > kWh/m<sup>2</sup>

**AFRICA**

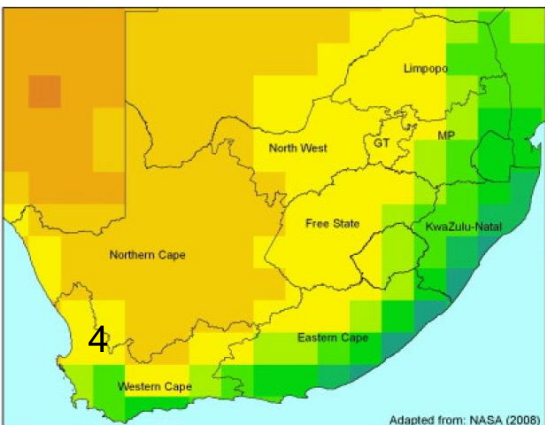
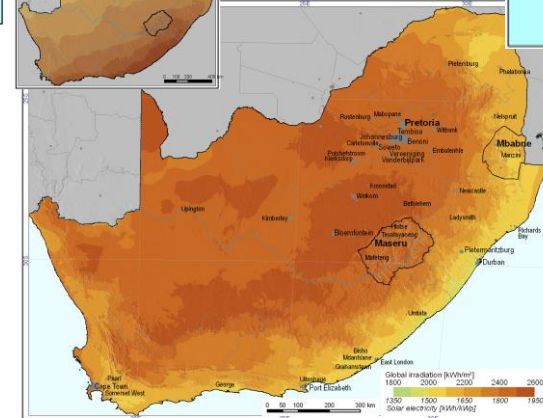
# South African Renewable Energy Resource Database - Annual Solar Radiation

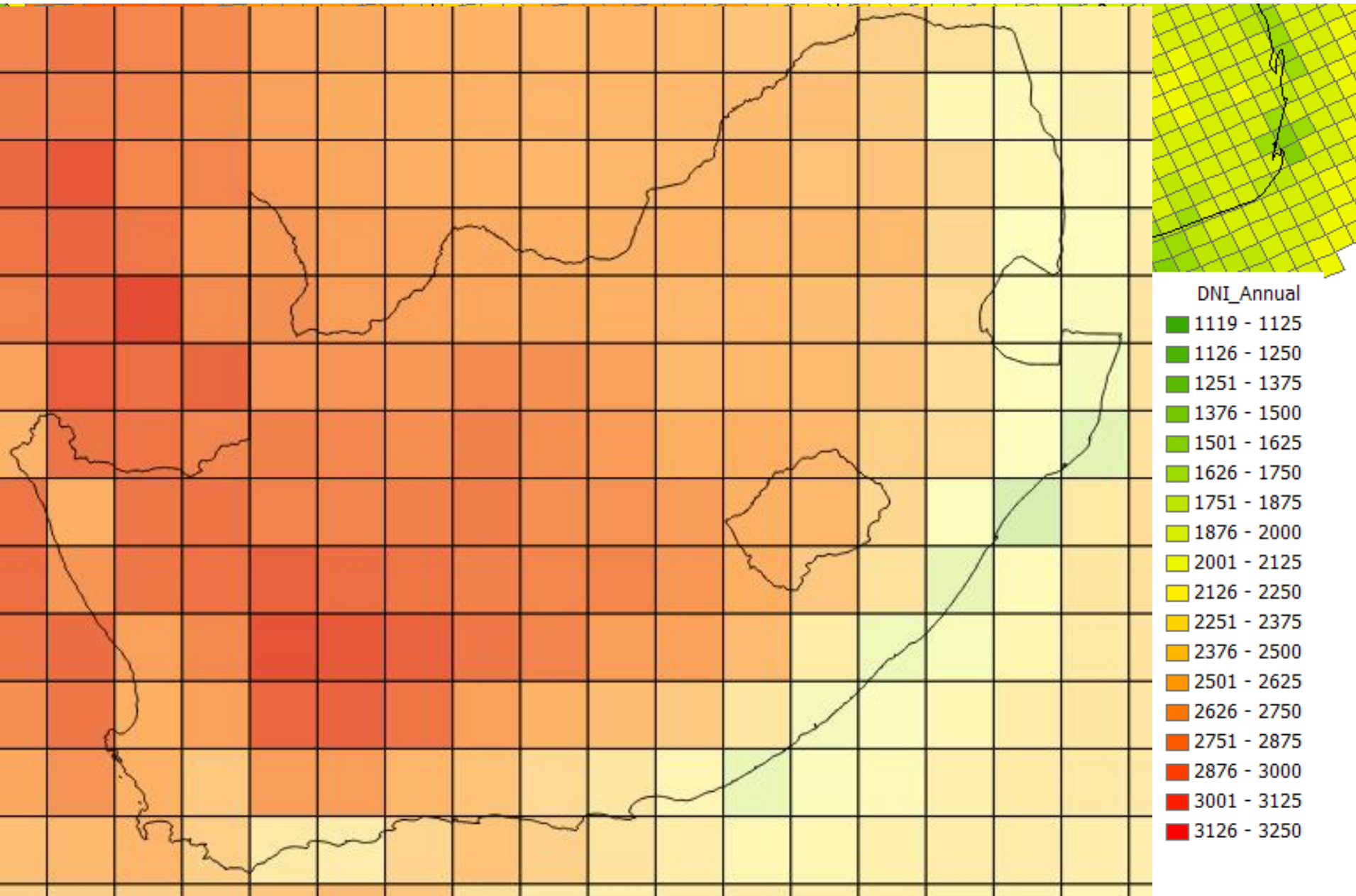


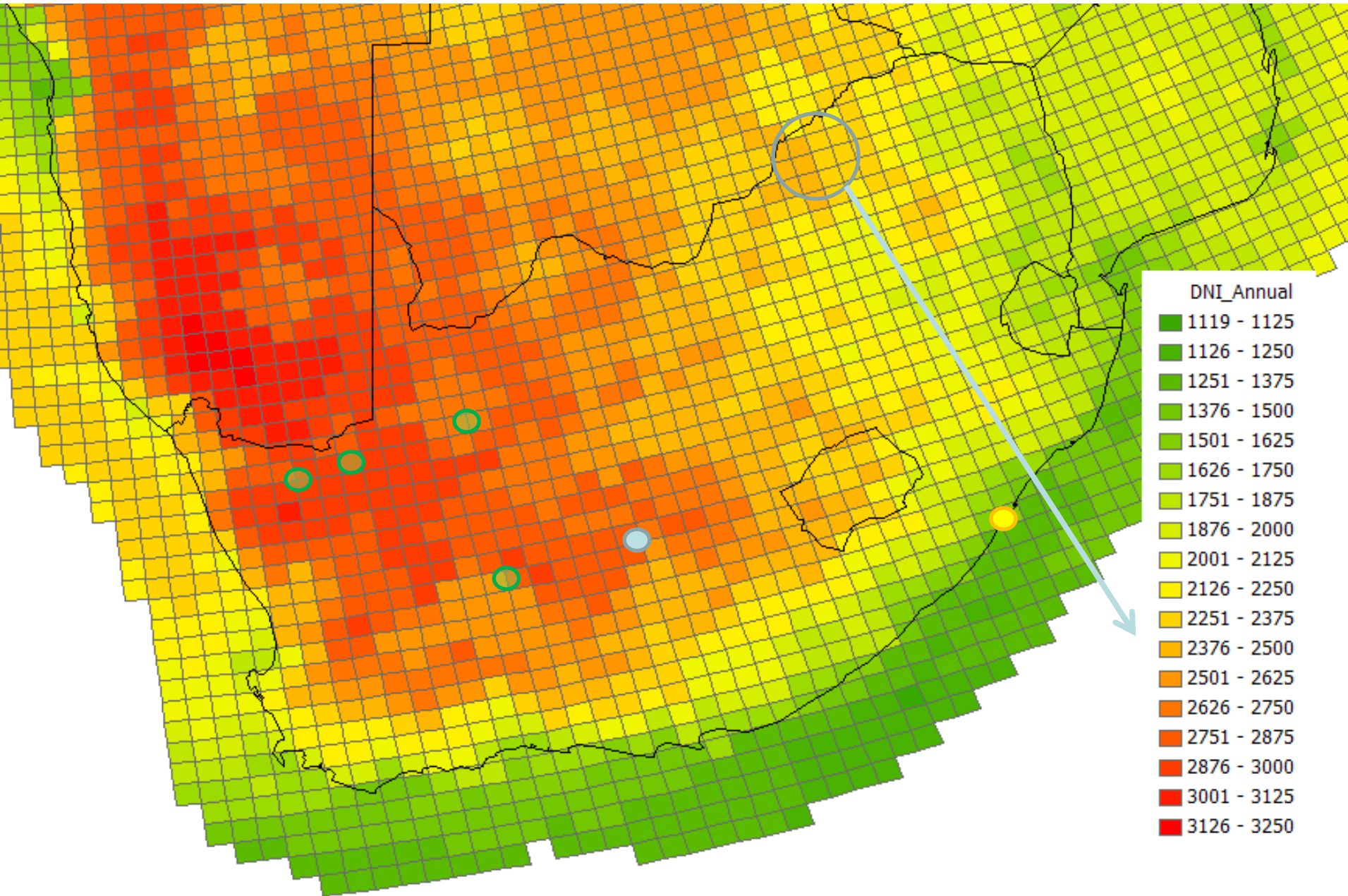
# GHI



Yearly sum of global irradiation incident on optimally-incline  
Yearly sum of solar electricity generated by 1 kWp system w  
optimally-inclined modules and performance ratio 0.75





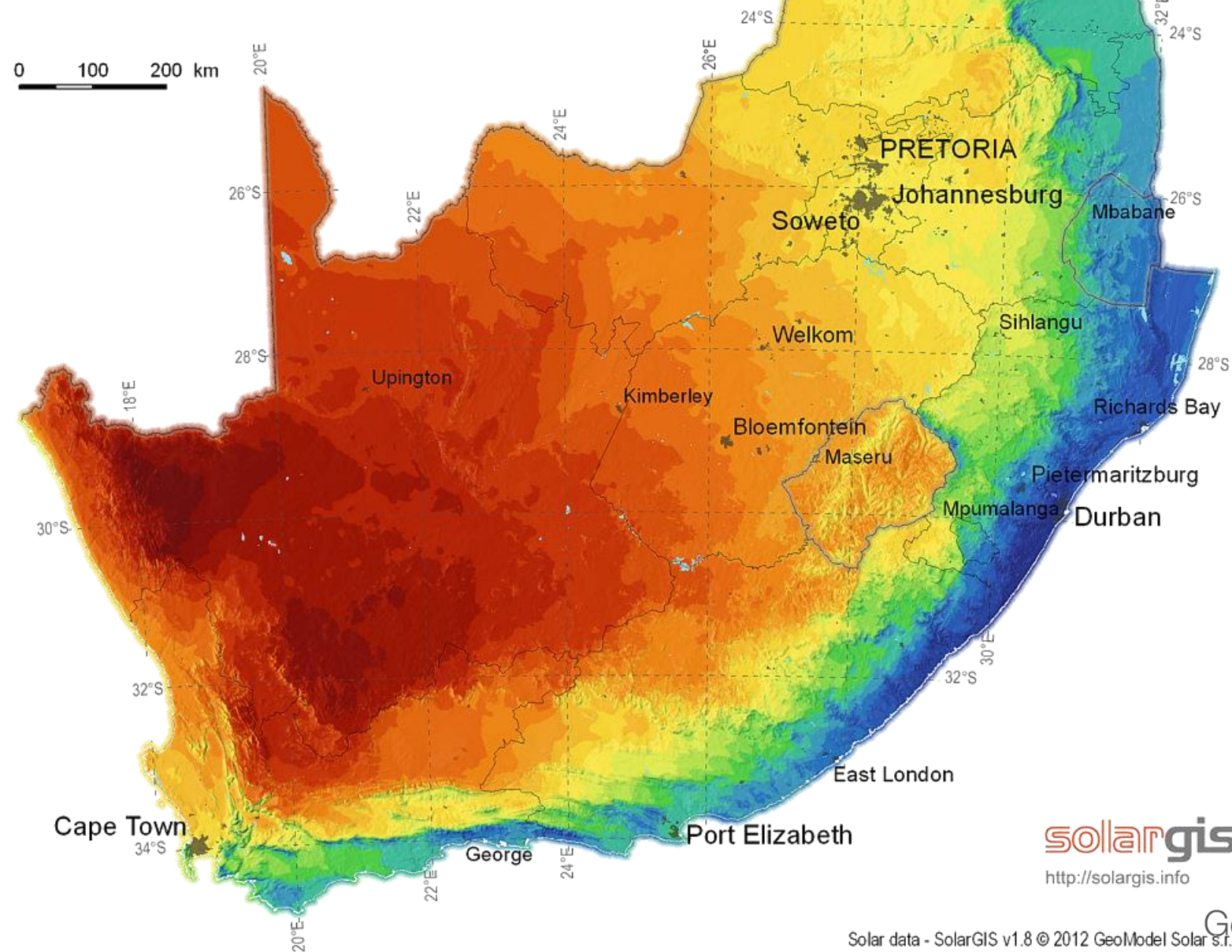


# South Africa, Lesotho and Swaziland

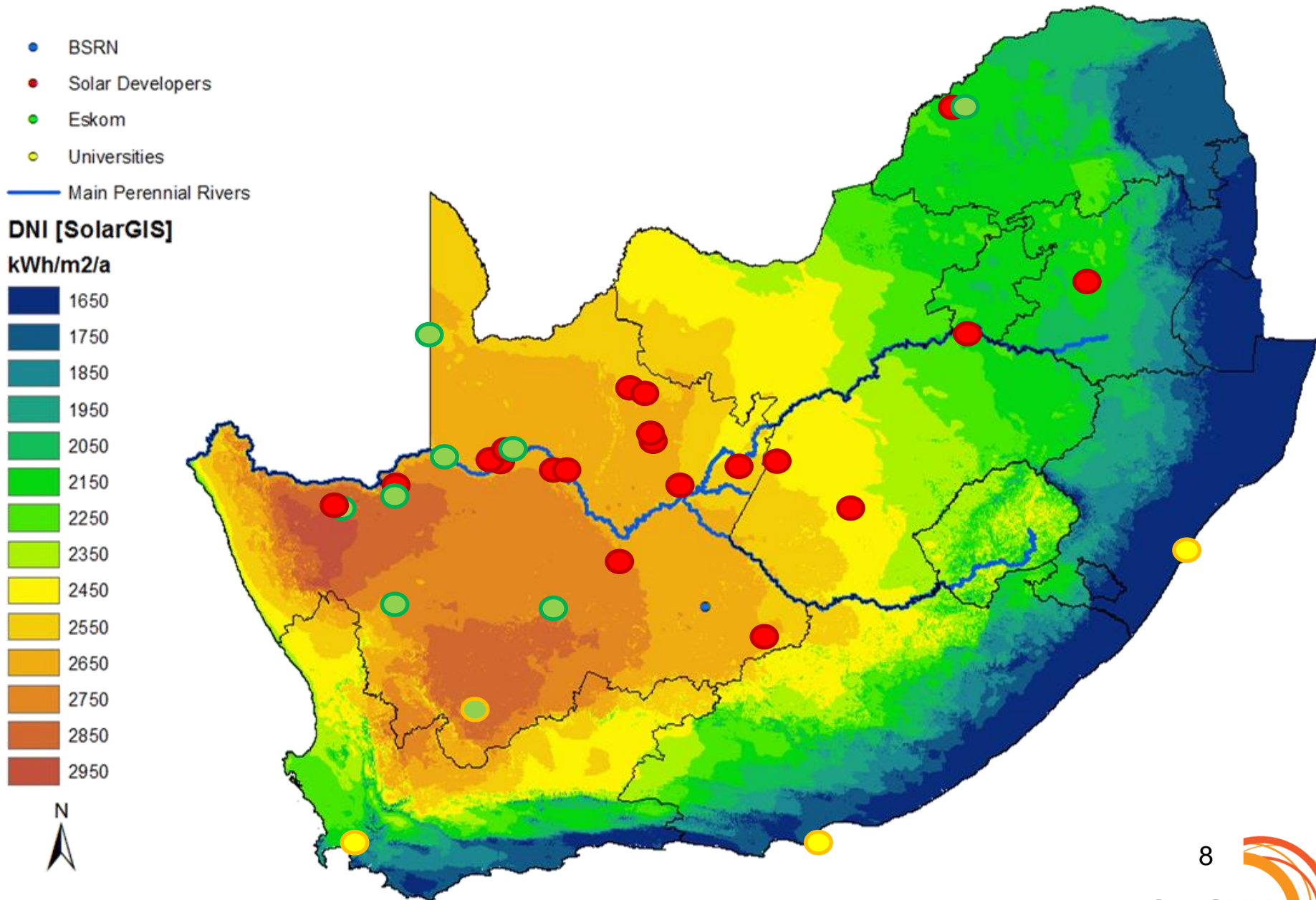
Annual sum of direct normal irradiation, average 1994-2010



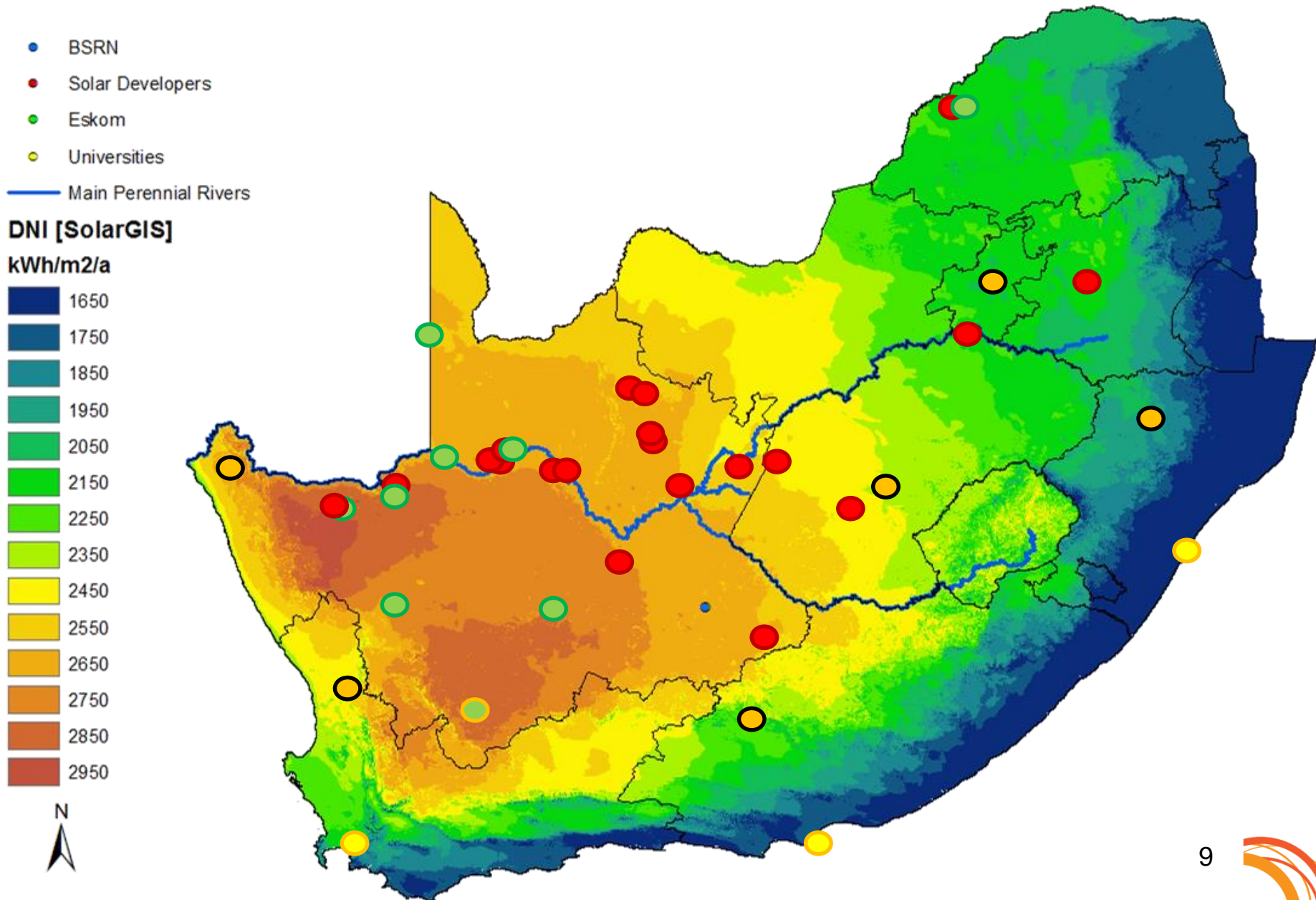
0 100 200 km



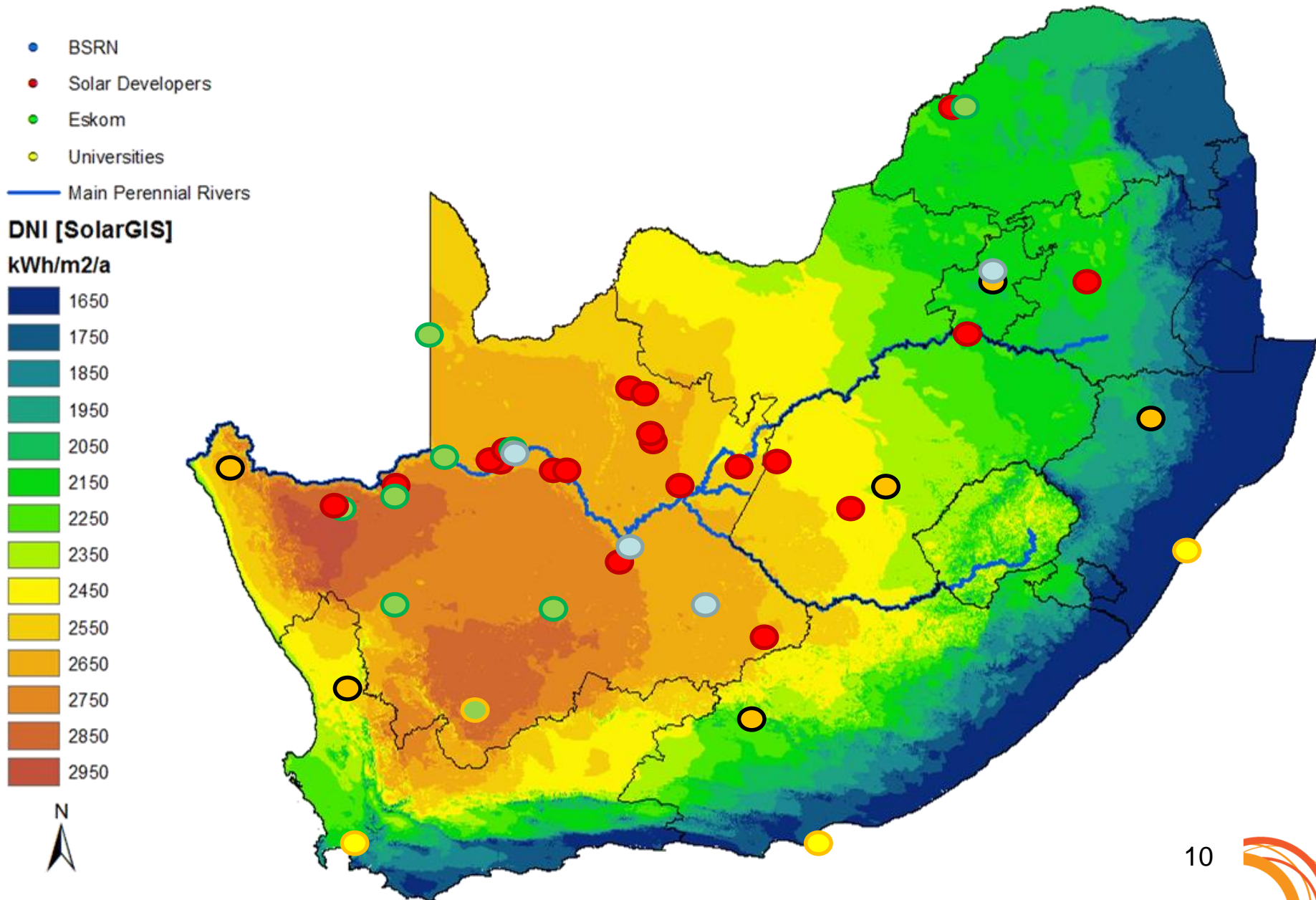
# DNI Measurement Stations in South Africa



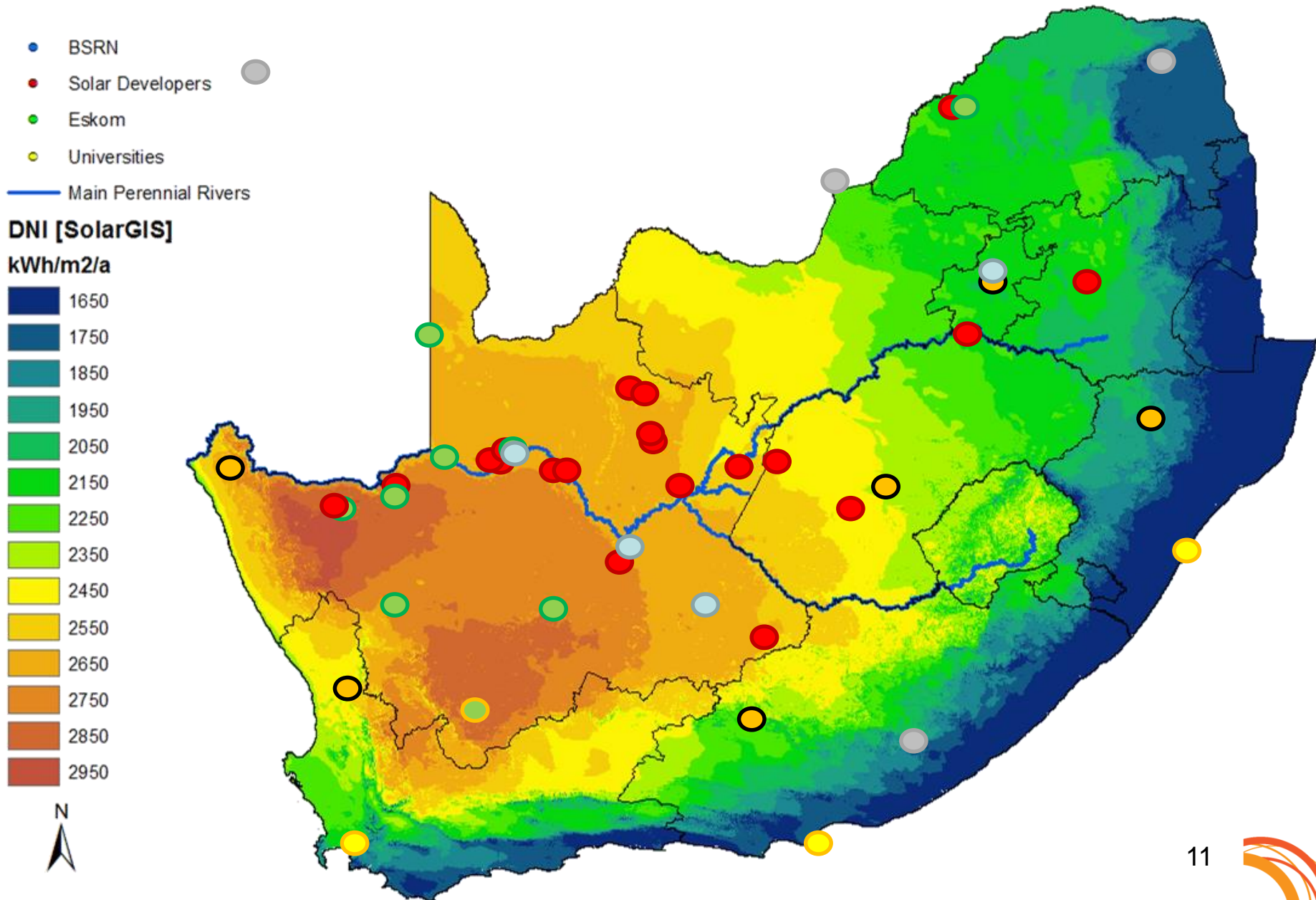
# DNI Measurement Stations in South Africa



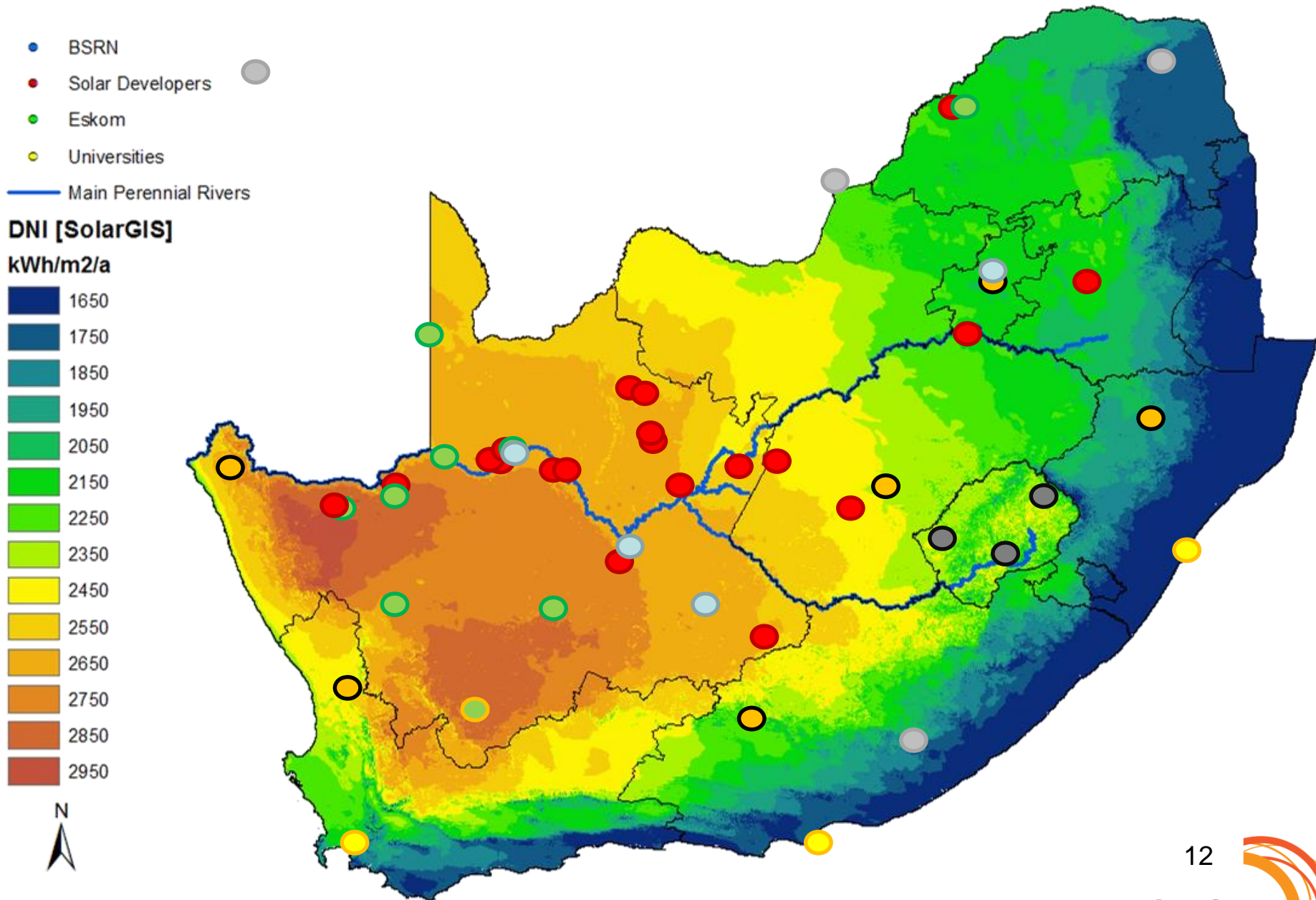
# DNI Measurement Stations in South Africa



# DNI Measurement Stations in South Africa



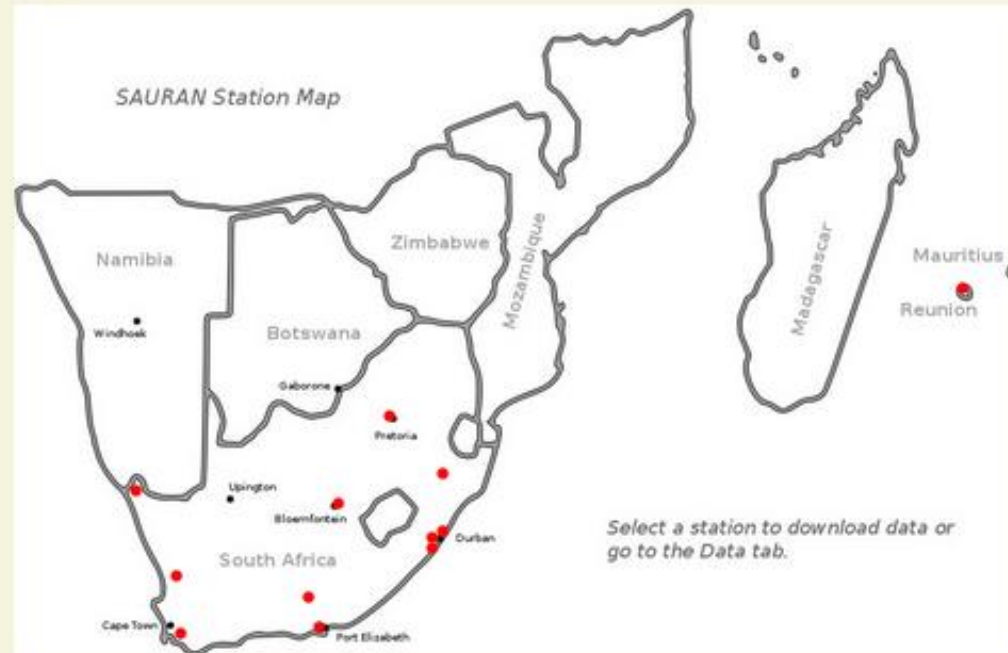
# DNI Measurement Stations in South Africa

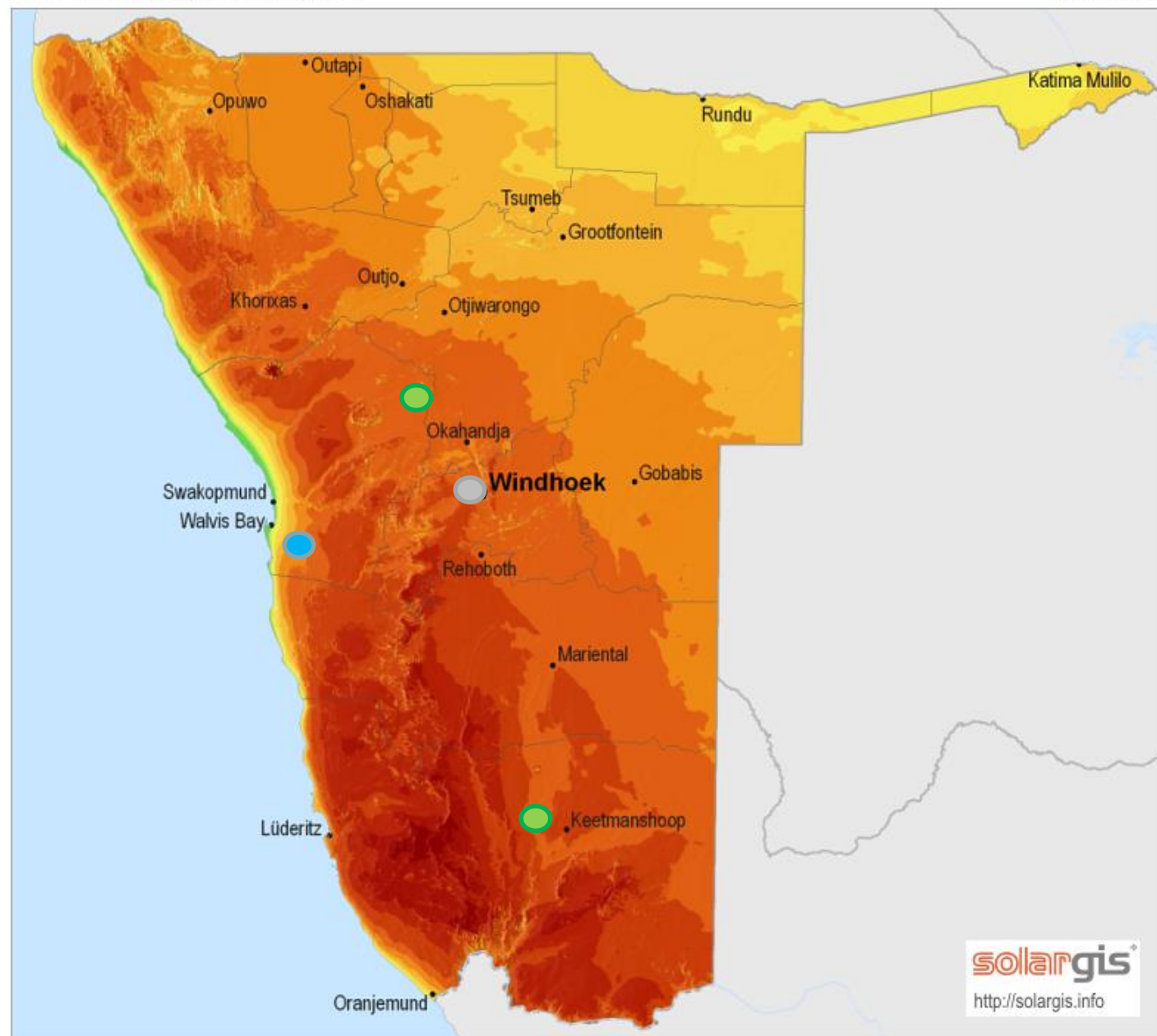




## Southern African Universities Radiometric Network

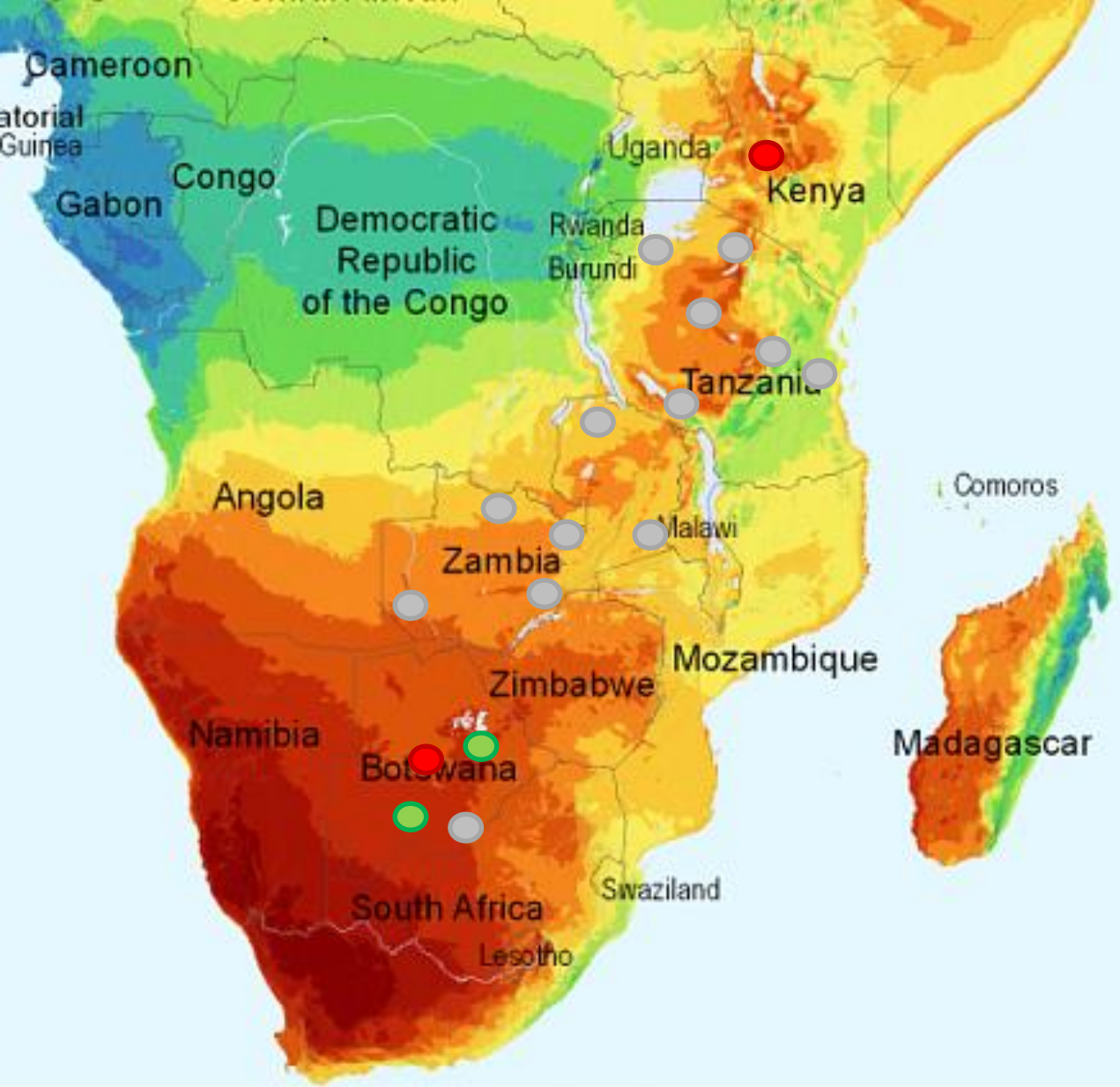
*Solar Radiometric Data for the Public*





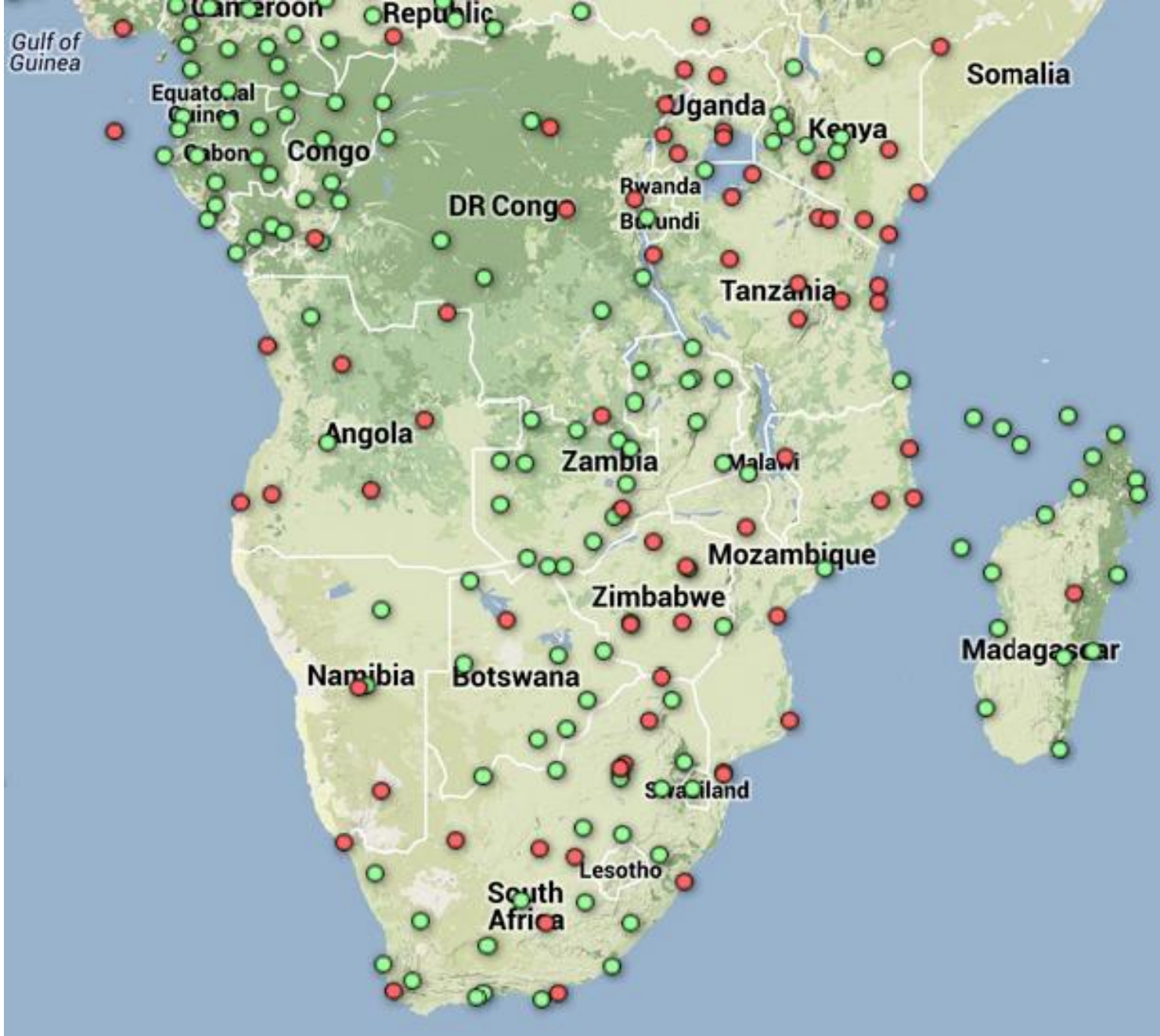
Average annual sum (4/2004 - 3/2010)





Average annual sum (4/2004 - 3/2010)





- meteorological stations with irradiation measurements
- meteorological stations without irradiation measurement



Ground Measurements in Tanzania

# Ground Measurements



# Thank you for your attention



## Contact Details

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## GeoSUN Colaborators



RENEWABLE & SUSTAINABLE  
ENERGY STUDIES



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