The measurement

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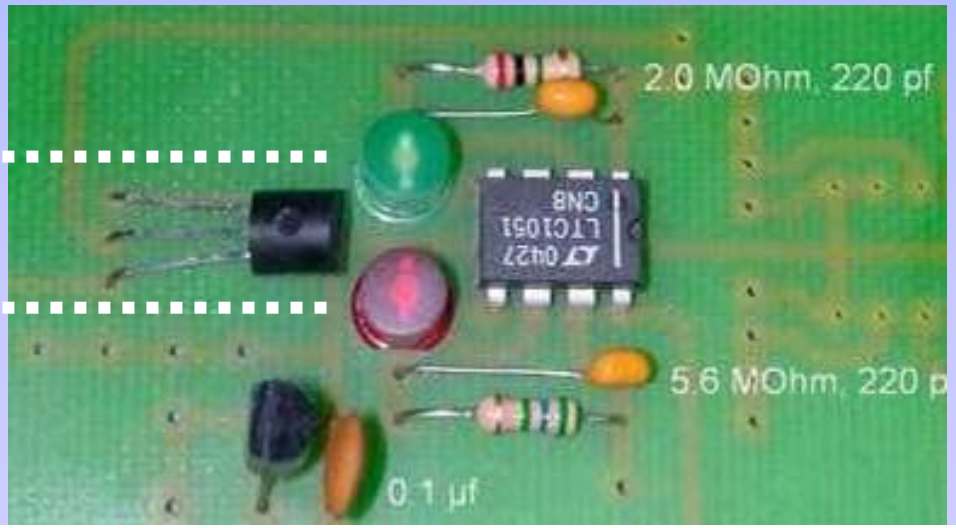
GLOBE Sun photometer

508 nm

625 nm



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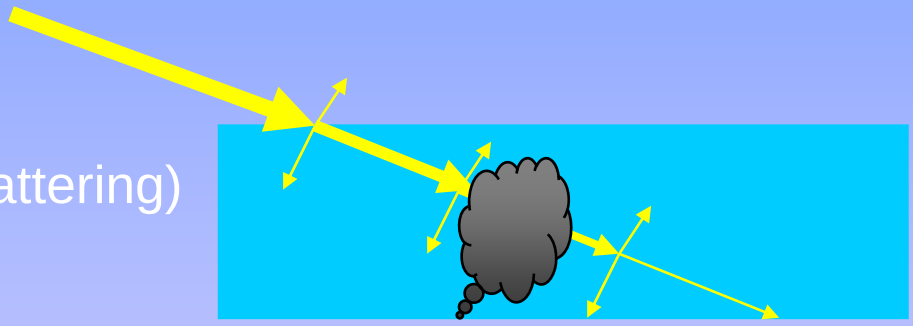
Scattering and absorption

1. Molecules (Rayleigh scattering)
2. Trace gasses (ozone)
3. Aerosols (AOT)

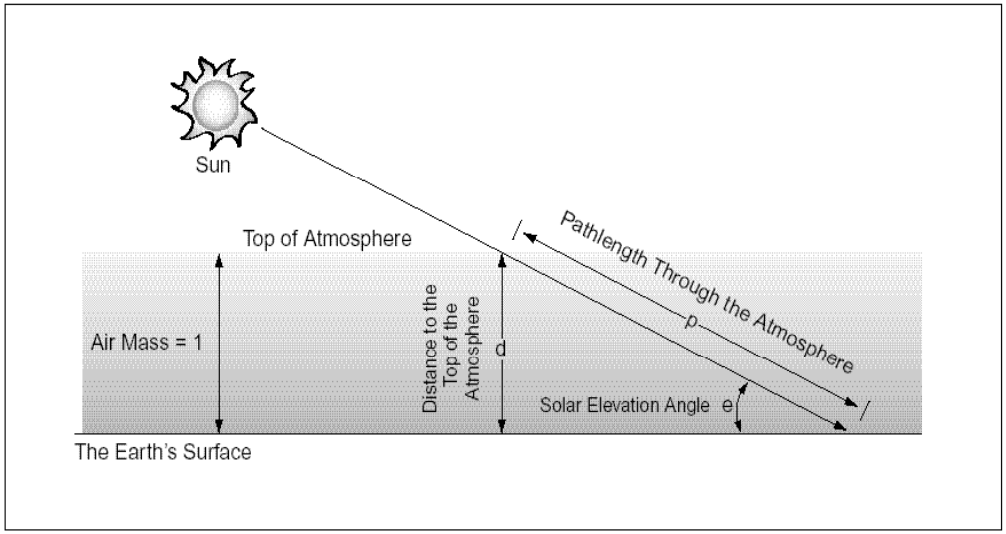


EXTtot = EXT1 + EXT2 + EXT3 --> EXT3 = AOT

AOD = EXTtot – EXT1 – EXT2

GLOBE Zonne fotometer

- Red (625 nm) en green (508 nm)
- Direct sunlight measurements (3)
- Output voltage proportionale to I
- AOT = extinction by aerosols
- Date and time to calculate solar position
- Sun not obscured by clouds



The measurement

- Date
- Time
- Max output voltage within 10 seconds
- Dark voltage
- Pressure
- Meta-data
- Temperature & RH
- Report data on GLOBE website

Attention:

- Never look directly at the sun!!!
- Clouds
- Unstable voltage...?

Calibration

- Caclulating V_0
- Langley plot calibration
- Relative calibration

Questions?

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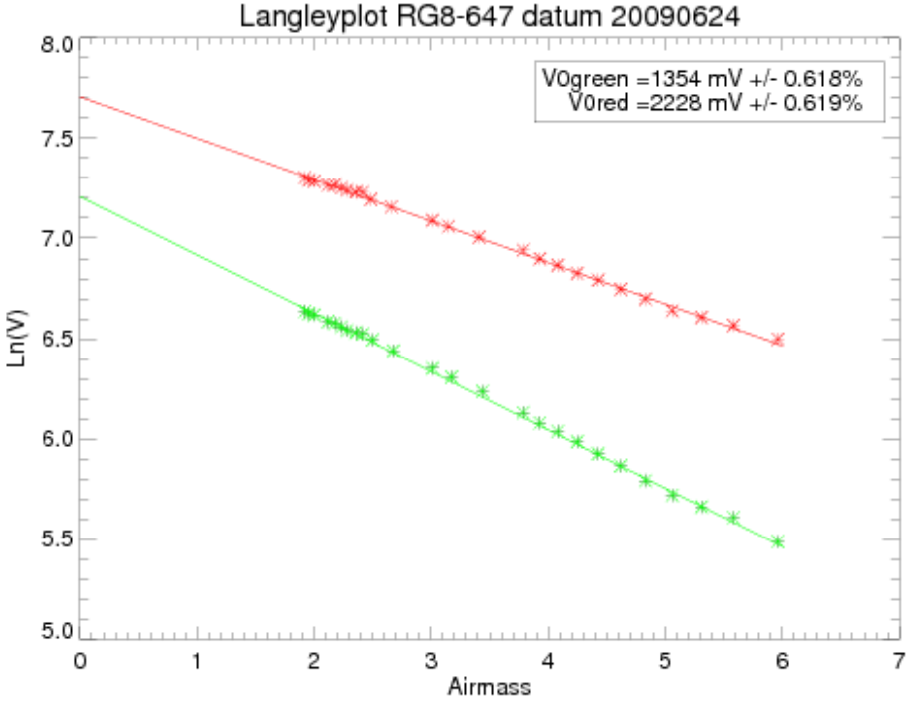
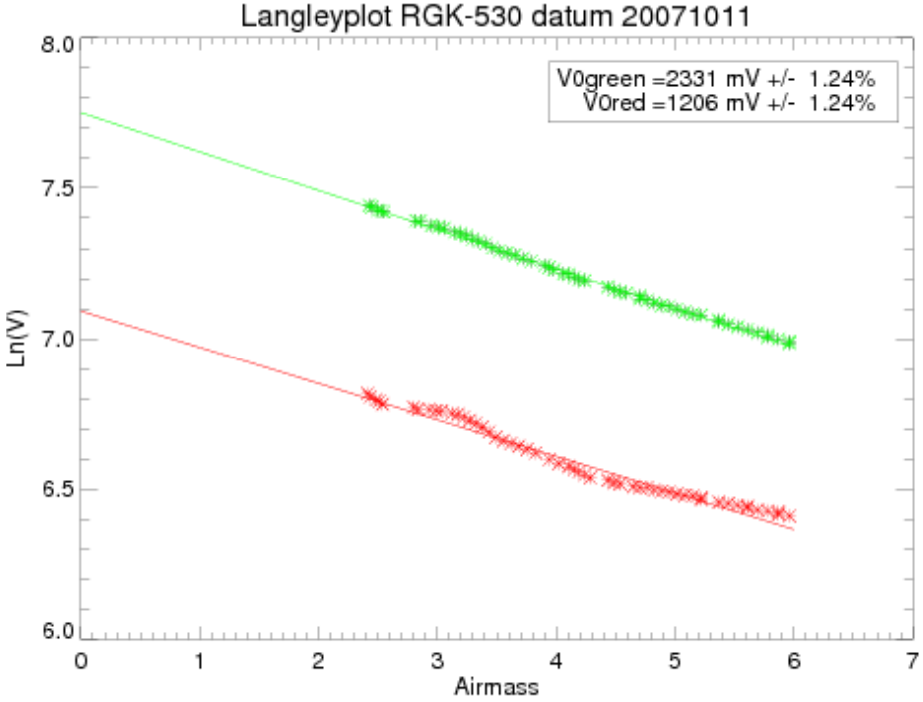
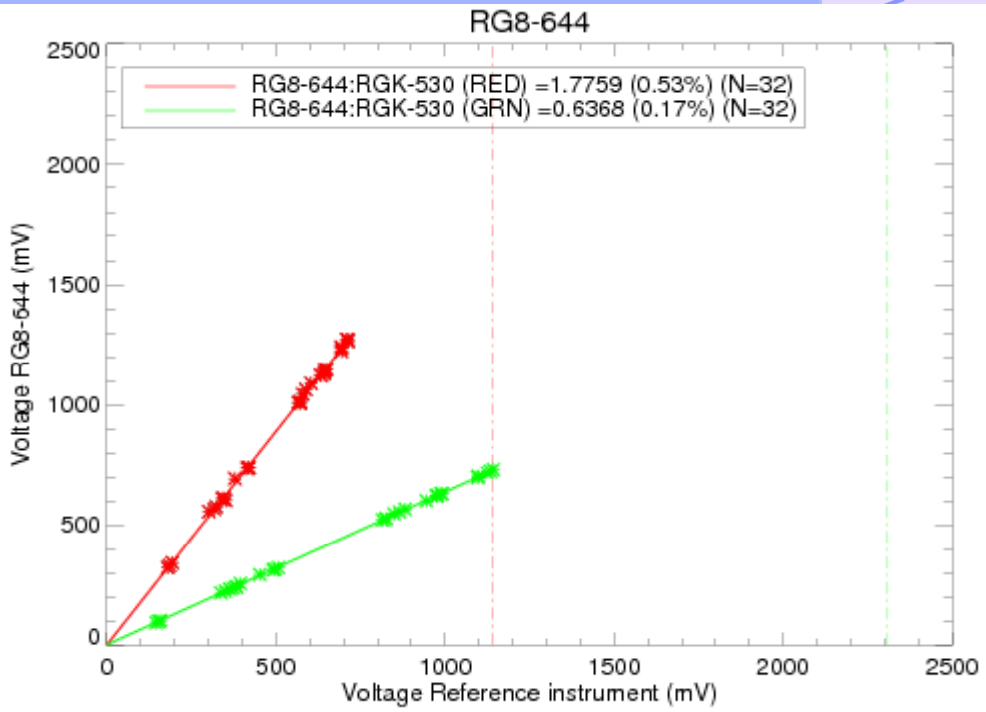
Langley plot calibration





Relative calibration

- Reference instrument
- Perform simultaneous measurements
- Calculate factor
- Calculate V_0 using V_{ref}



Your position is

Latitude: 41.111

Longitude: 020.799

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