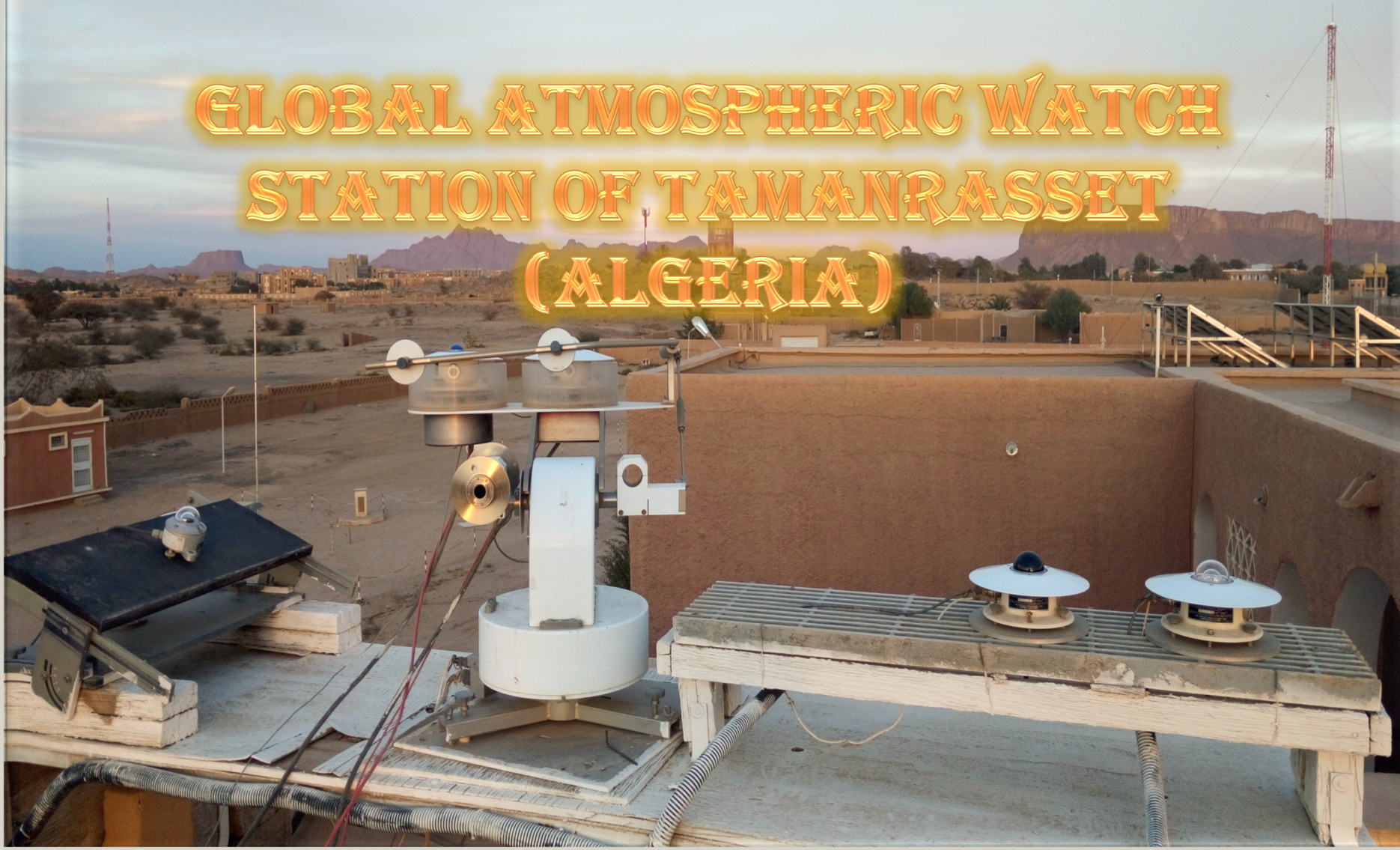

International and Regional Pyrheliometer Comparaisons (IPC XIII,RPCs)
World Radiation Center (WRC), 27.9. -15.10.2021 in Davos (Switzerland)

National Office of Meteorology of ALGERIA

GLOBAL ATMOSPHERIC WATCH STATION OF TAMANRASSET (ALGERIA)



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Outline of communication

I. Introduction
II. Site Of Tamanrasset
III. Site of Assekrem
IV. conclusion

History and Information :

Tamanrasset is located in désert rock(Hoggar) region between the equator and mid-lattitude.
The site of Hoggar is chosen for the geographical position, heigh altitude and excluded local anthrogenic pollution.

The climate of Tamanrasset influenced by monsoon flux in summer.

- The GAW activities began in september 1994, with the instalation of some instruments at Tamanrasset (solar radiation and pollution.)

-Since mars 1997 , Tamanrasset is Part of the Gaw global station couple site Assekrem &Tamanrasset.

The GAW(Global Atmospheric Watch) program has been carried out in two sites: Tamanrasset Town and Assekrem since 1994 in collaboration with WMO.

II- Site of Tamanrasset:

Measurements at this site relate to atmospheric cloudiness, total ozone, and radiation and AOD

A- Turbidity with Sun Photometer (since1987)

measured using the solar photometer 3 times / day
to deduce the coefficient extinction of solar radiation
by aerosols at a wavelength of 0.5 µm.

B- Total ozone measurements: Dobson

Total ozone measurements with Dobson began since April 1994
in collaboration with the NOAA laboratory
(ESRL - Boulder - USA).
Each 05 years the equipment must be calibrated.

C- BREWER MEASUREMENT and CIMEL PHOTOMETER

- Total Ozone & Spectral UV with **Brewer Spectrophotometer** (2011). -AERONET

Each 02 years the equipment must be calibrated at the Izana station.

- **Cimel photometer**: measurement of AOD (Aerosol Optical Depth, equivalent to atmospheric cloudiness), installed in October 2006. It is located in Tamanrasset town. Each 01 year the equipment must be calibrated at the Izana station.

This measurement program is coordinated with the research center of the IZANA station
(Canary Islands –Santa cruz-Spain)

D –Radiation measurment:

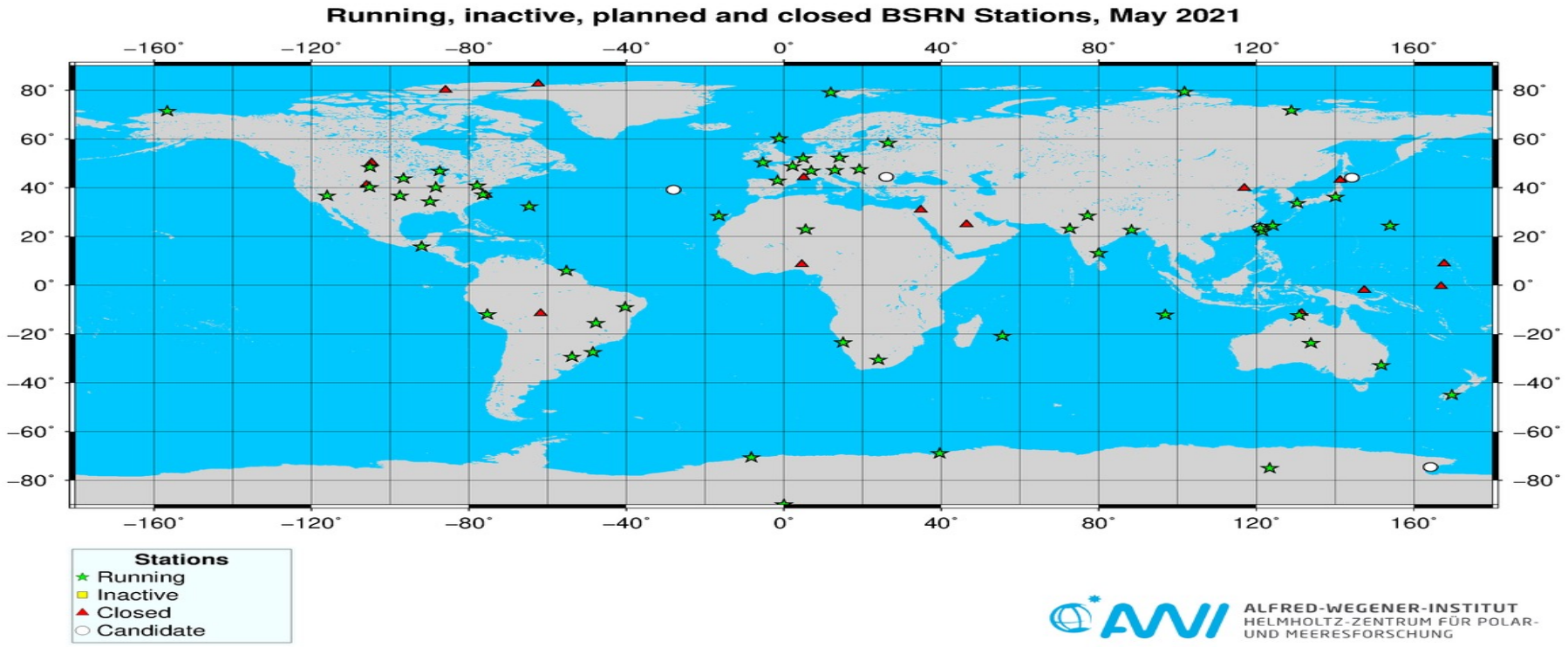
1-Basic Measurements

-Direct Radiation (Eppley NIP Pyrheliometer)

-Global Radiation (Epley PSP Global Pyranometer)

-Diffuse Radiation (Shaded Eppley PSP Pyranometer

-Longwave Downward Radiation LWDn Shaded Eppley PIR Pyrgeometer



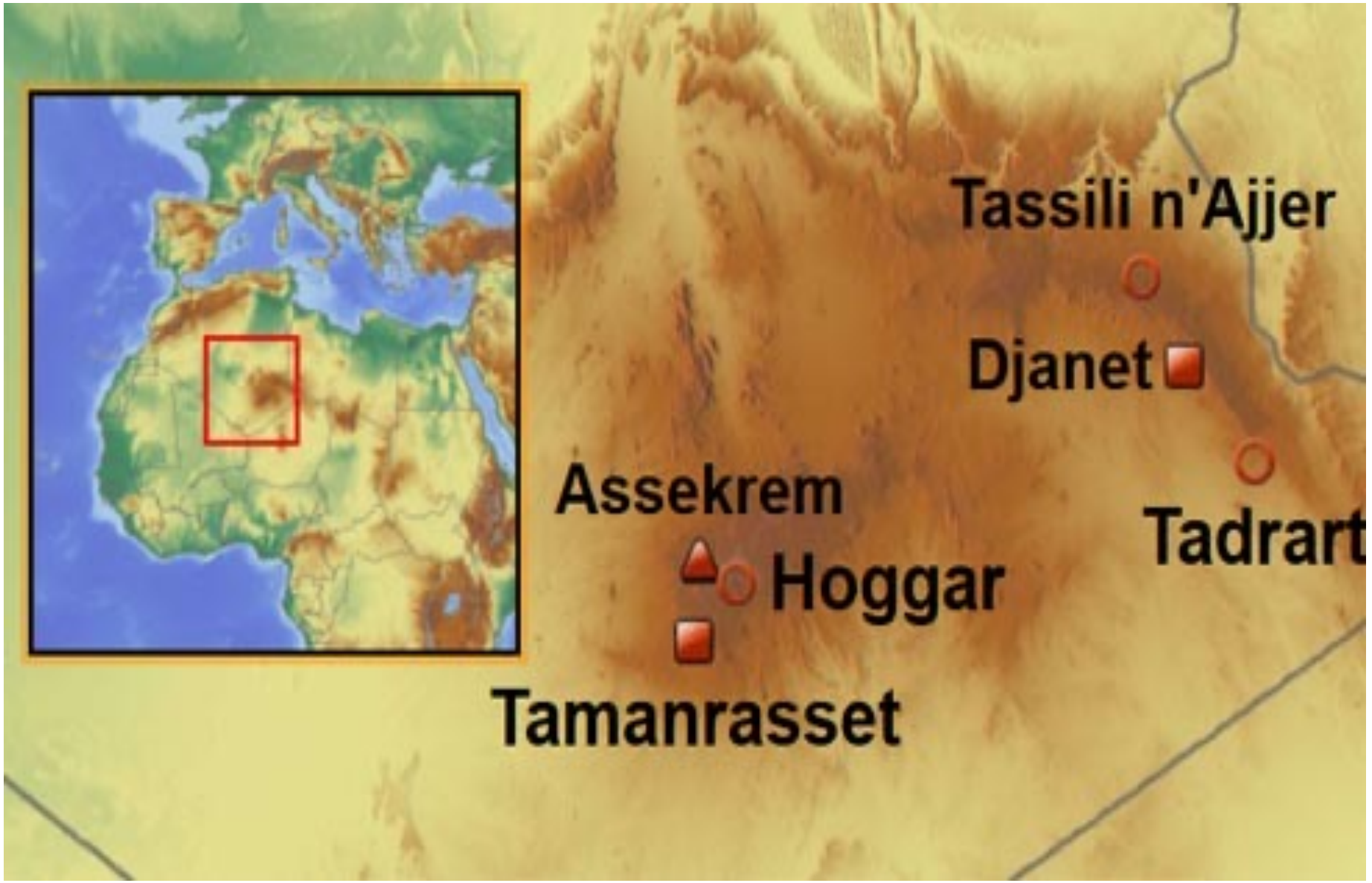
2-Calibration of Radiation Instruments

The calibration of the radiation sensors must be carried out each **year** on days :
-clear skies
-very good visibilities
- calm wind at low
We use a standard (AHF cavity No. 29225). For direct measure.

Every five years, WMO organizes a calibration companion for secondary stallions at the radiation center at DAVOS (Switzerland).

III- Site of Assekrem

POSITION IN THE CARTE



1-MEASUREMENT OF SURFACE OZONE and CARBON MONOXIDE

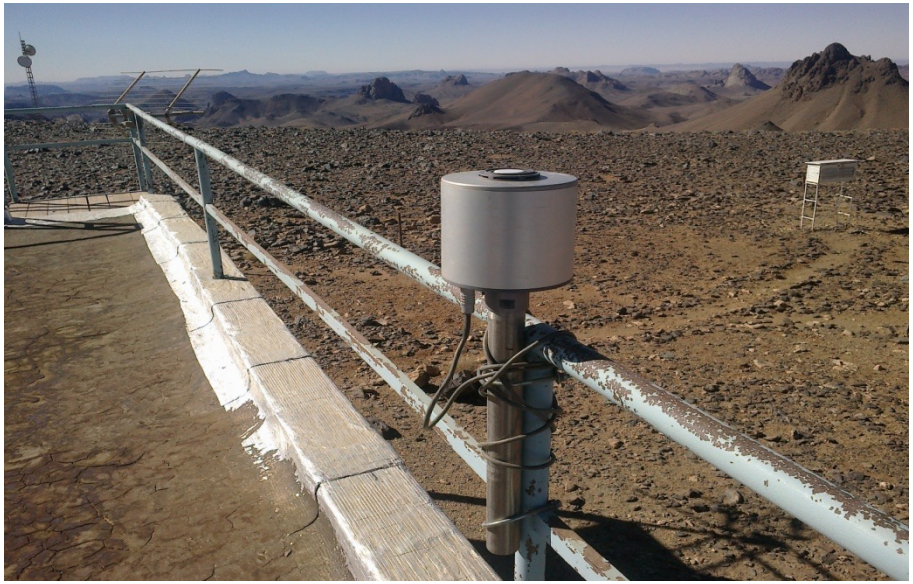
This program is carried out with the Swiss laboratory EMPA (Zurich)

2- GREENHOUSE Gas (GHG) Sampling:

This program is being carried out in collaboration with the NOAA laboratory (ESRL - Boulder - USA) for the shipment of gas sampling boxes from Assekrem.

Air samples are taken once a week (every Sunday) in special cylinders received from Boulder (NOAA)
to determine the concentration of the main greenhouse gases (GHGs): CO2, CH4 and CO.
The packages containing the bottles are sent to the NOAA laboratory for chemical analysis.

RAINNING SITUATION FEBRARY 2014



IV-Conclusion

The Measuring radiation and atmospheric parameters in the desert environment are crucial tools for scientific community to better understand the behaviour of climate in this special area due to its location over mineral sands source area (Hoggar Relief - Central Sahara) that affects the global distribution of aerosols on a large scale.

The solar radiation information acts as an indicator of climate change since its availability on the earth depends upon the atmospheric load and sky conditions.

However, more cooperation and assistance are needed especially in radiation modelling field as well as quality control and maintenance of the specific Measurement equipment in Tamanrasset.

THANK YOU FOR YOUR ATTENTION