

# Chemical Metrology Projects

Supporting national greenhouse gas and air quality activities

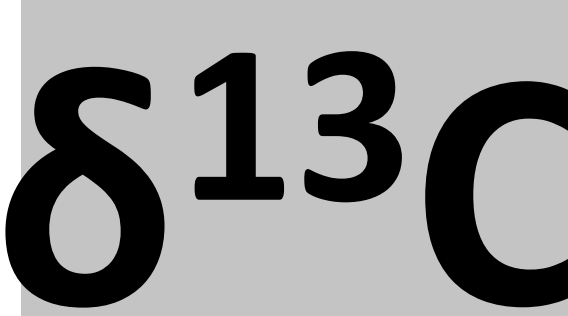
## Comparison services provided to NMIs/DIs



**BIPM.QM-K2**

- On-demand service for NMIs providing CO<sub>2</sub> in Air and N<sub>2</sub> Standards
- Manometric Reference Facility at the BIPM
- Supports NMI services for GHG standards and binary gas mixture services from NMIs with emerging metrology systems

**BIPM.QM-K5**



**BIPM.QM-K3**

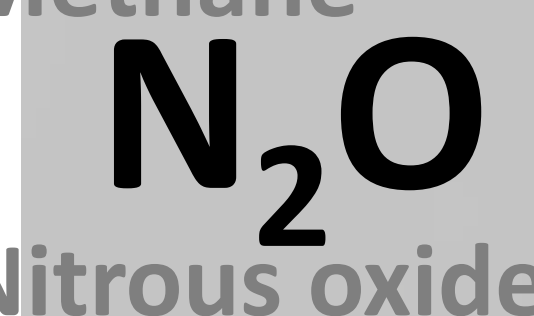
- On-demand service for isotope ratios in CO<sub>2</sub> and CO<sub>2</sub> in Air Standards
- IRMS Reference Facility at the BIPM
- Supports NMI services for isotope ratio standards and measurement of carbon isotopes across all sectors

**BIPM.QM-K4**



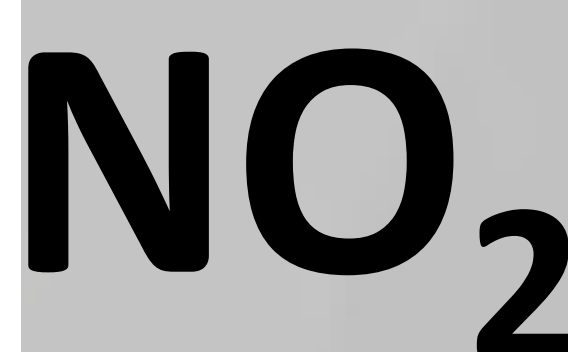
**CCQM-K84.2023**

- BIPM coordinated CCQM CH<sub>4</sub> and N<sub>2</sub>O in Air Standard comparisons
- Central comparison facility at the BIPM



**CCQM-K68**

- Supports NMI services for GHG standards



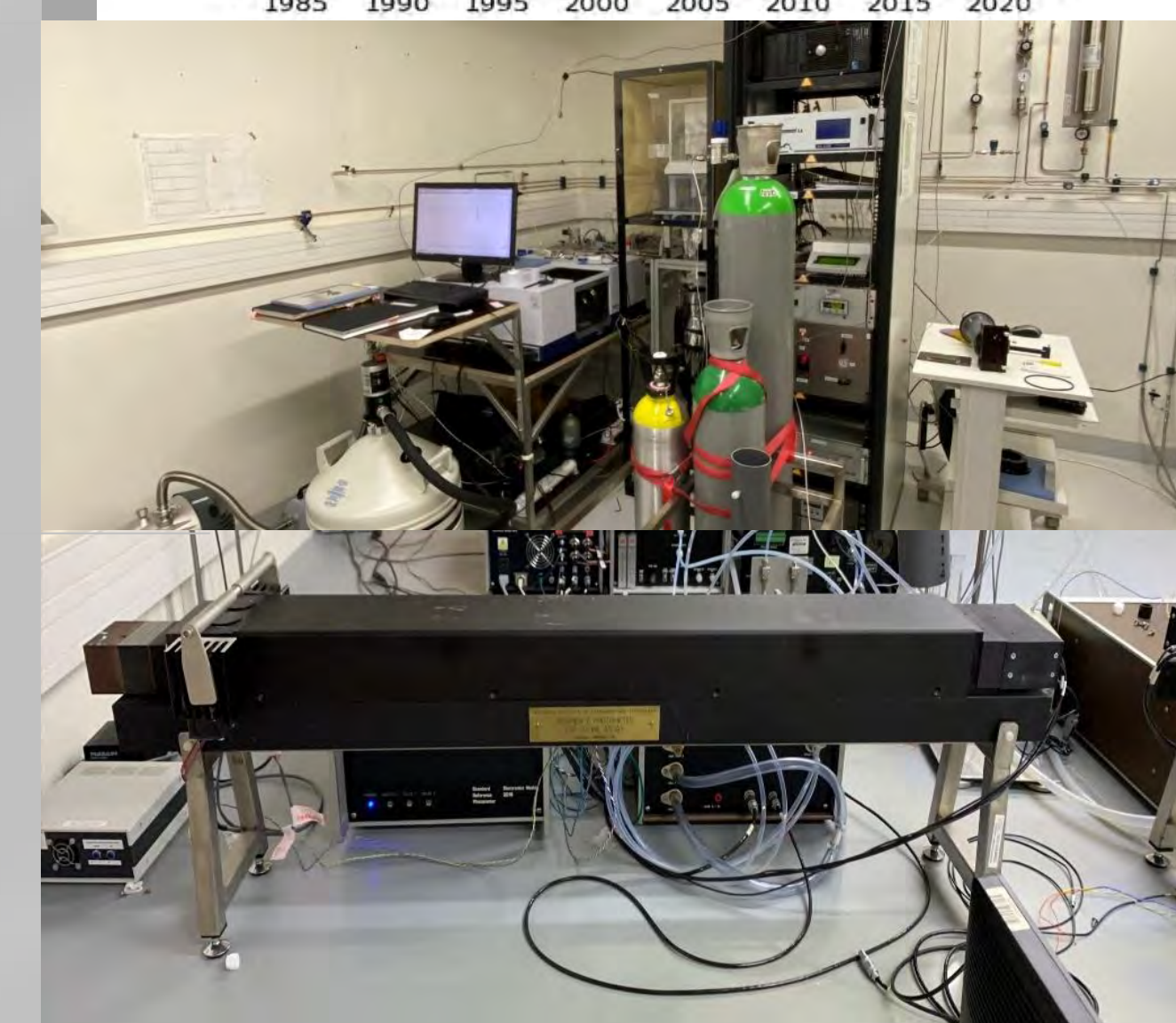
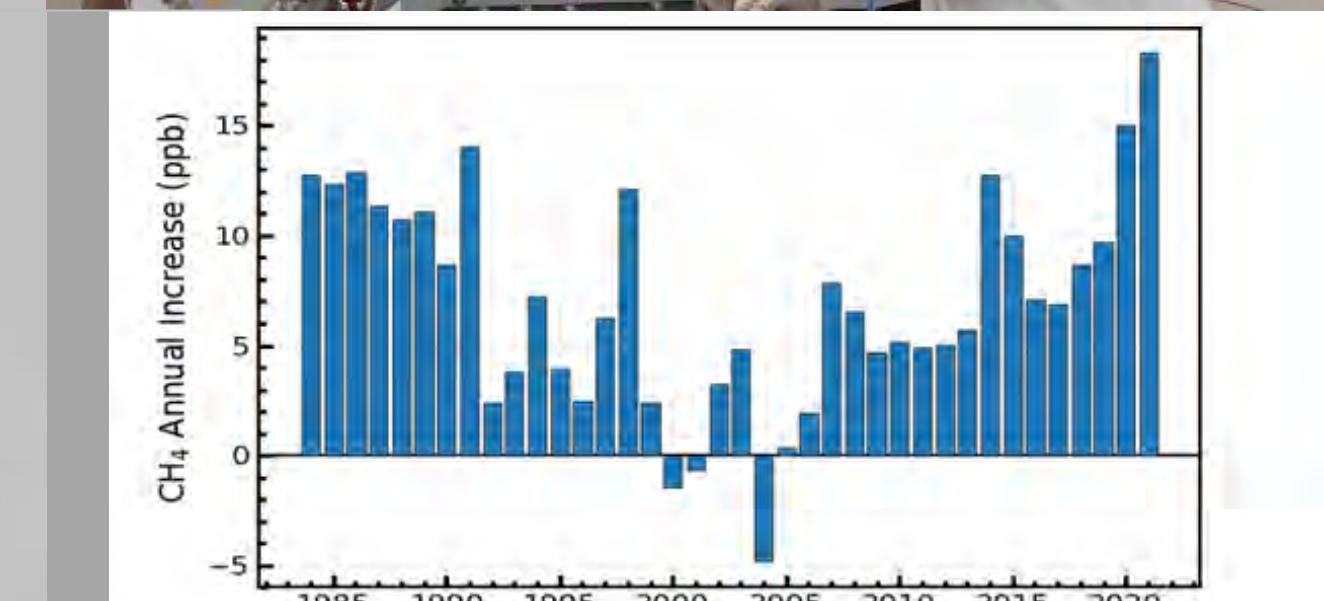
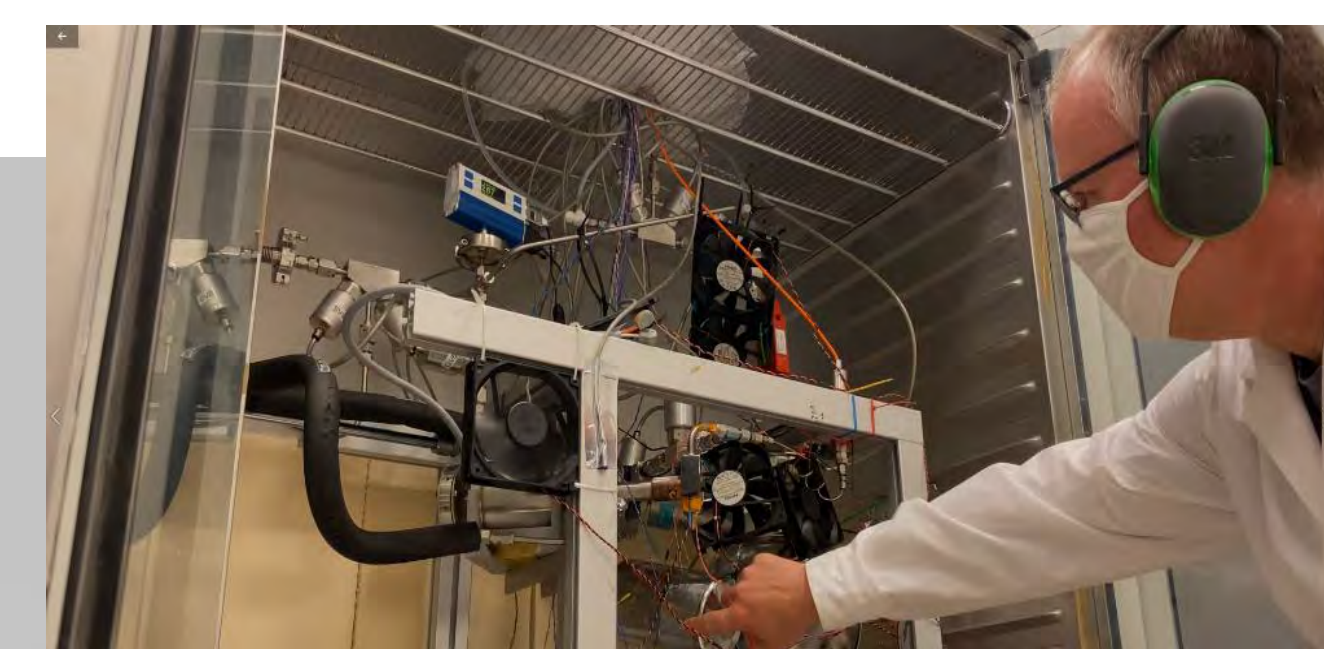
**BIPM.QM-K6**

- On-demand comparison service for NO<sub>2</sub> in nitrogen Standards
- Dynamic Gas Reference Facility at the BIPM
- Supports NMI services for air quality and emissions standards including vehicle emissions



**BIPM.QM-K1**

- On-demand service for Surface Ozone Standard Photometers
- Reference Facility at the BIPM based on triad of standards
- Supports NMI services for air quality standards and monitoring networks



## Knowledge Transfer Services provided to NMIs/DIs

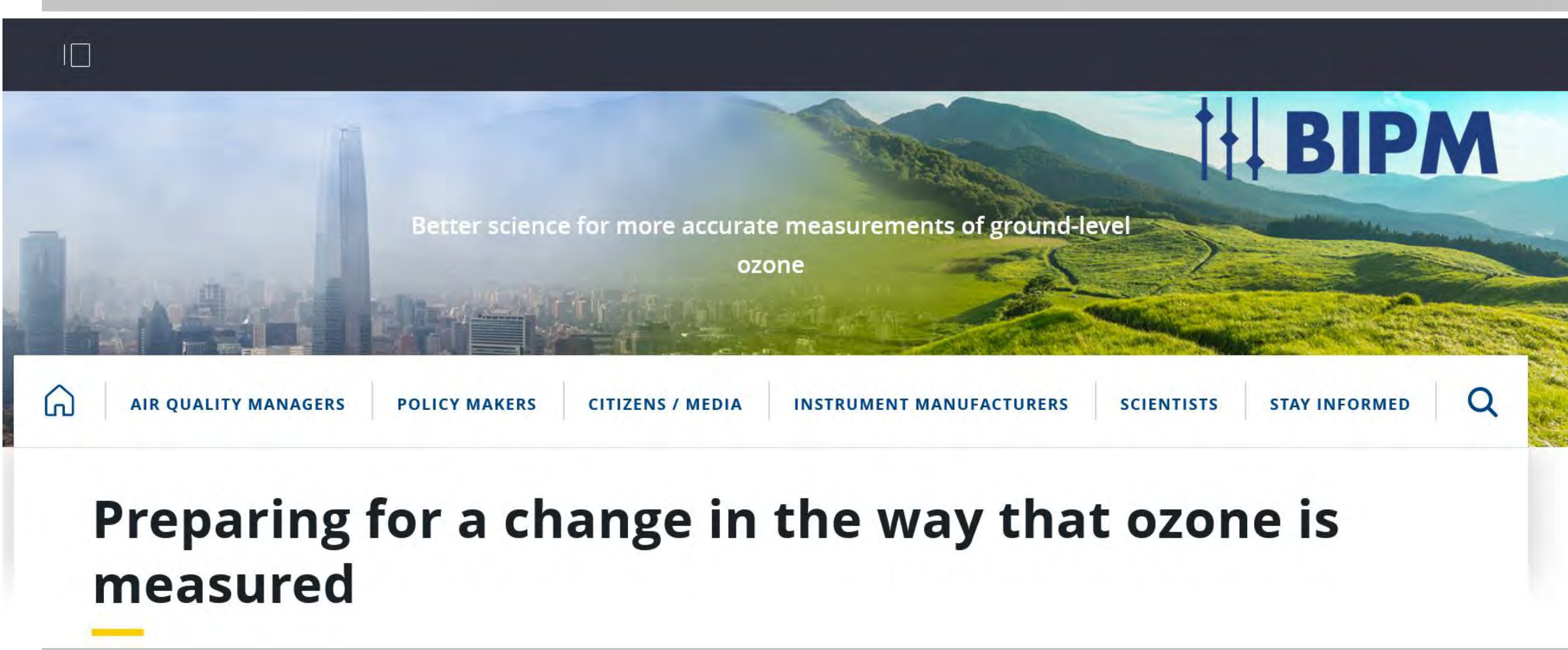
**KT1: Provision of on-line e-learning courses to NMI Scientists with online support from BIPM staff covering:**

- FTIR for gas standards and metrology
- Dynamic methods for reactive gas standards (*new for 2024-2027*)
- CO<sub>2</sub> isotope ratio measurements (*new for 2024-2027*)



**KT2: Support for NMIs acting as a Comparison Pilot Laboratory for the first time**

## Support for CCQM Coordinated Activities



**CCQM Working Groups** **CCQM-GAWG Task Group on GHG Scale Comparisons (CCQM-GAWG-TG-GHG)**

- Supporting the Task Group in developing on-going comparisons for greenhouse gas scale standards

- Leading the development of a new database for greenhouse gas standard relationships



**CCQM Working Groups** **CCQM Task Group for Ozone Cross-Section**

- Supporting the Task Group in a coordinated worldwide change of ozone cross section values