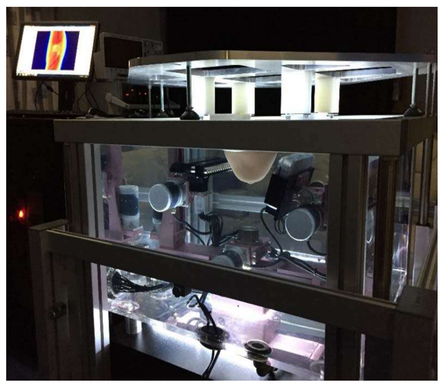
Acoustics, Ultrasound, Vibration and Underwater Acoustics

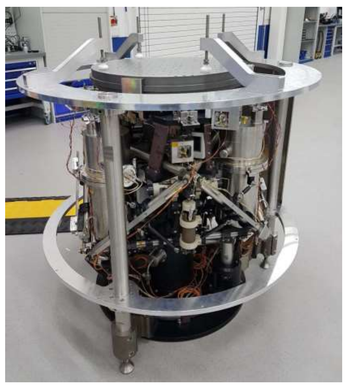
The Consultative Committee for Acoustics, Ultrasound and Vibration (CCAUV)

Global forum for NMIs on innovations, best practices and state of the art

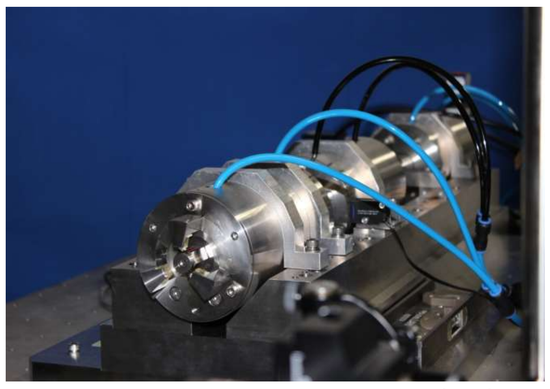
- The CCAUV has organized **Workshops** and a **NMI report** for sharing information.



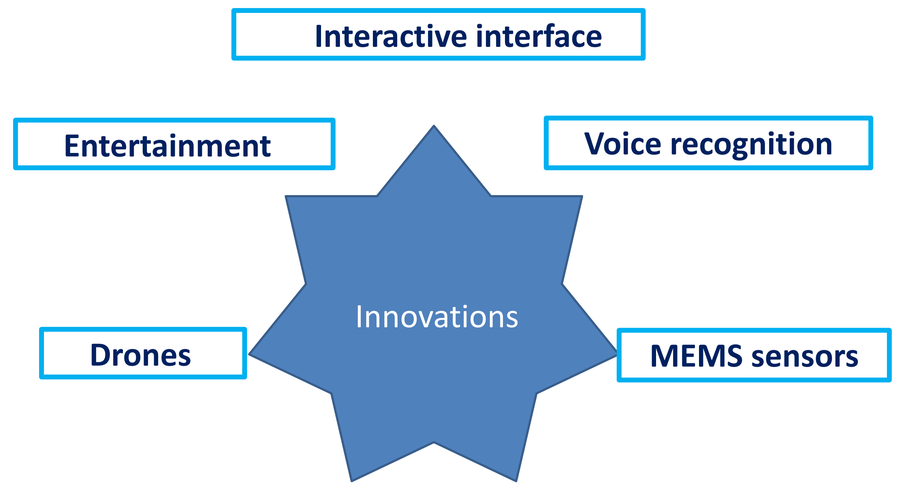
Phase-insensitive Ultrasonic Computed Tomography (piUCT) (Photo: NPL)



A 6DOF micro-vibration measurement and generation test facility (Photo: NPL)



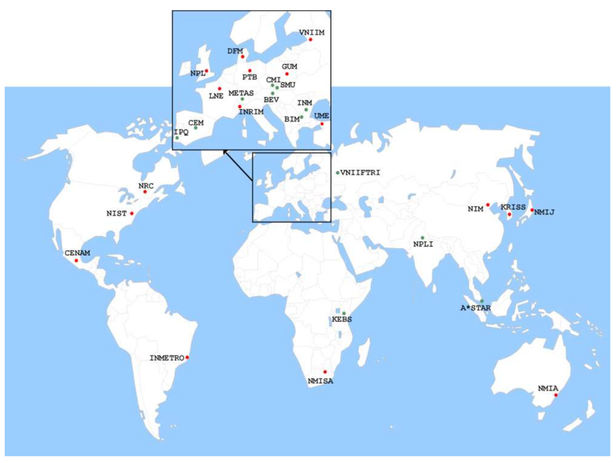
Low intensity shock acceleration exciter. Photo (NMIJ)



- *Metrologia* Focus Issue on **"Metrology for Dynamic Measurements"**
- **CCAUV** website: **https://www.bipm.org/en/committees/cc/ccauv/**
- **CCAUV** news and Open Access Policy

The CCAUV facilitates dialogue between NMIs and new and established stakeholders

Important CCAUV relationships with other international organizations:

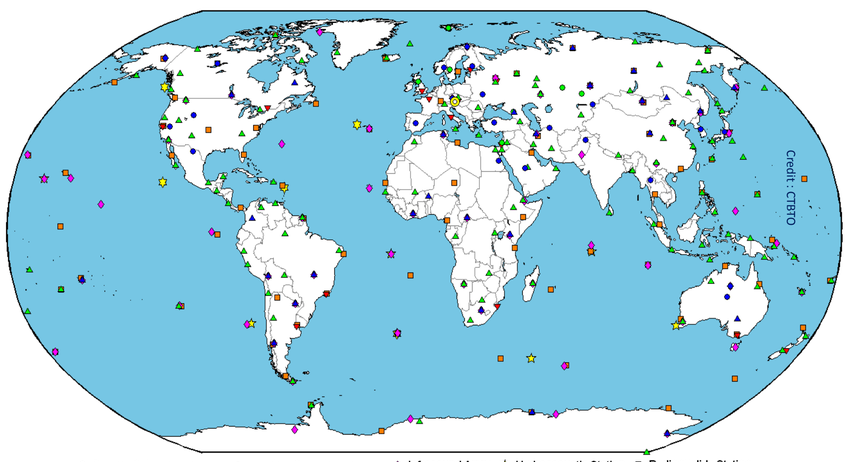


NMIs and DIs

- *17 members*
- *14 observers*

- **The International Organization for Standardization (ISO)**
- **The International Electrotechnical Commission (IEC)**

IMS Network



The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

The relationship between the **CCAUV** and the **CTBTO** is developing and there is regular dialogue concerning the infrasound and low-frequency vibration traceability of its **International Monitoring System (IMS).**

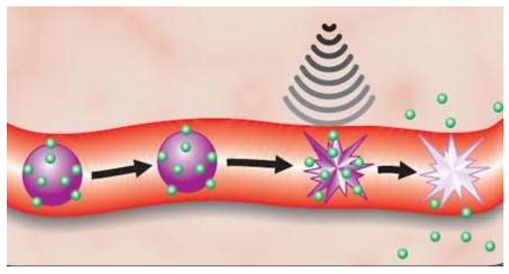
Infrasound station (Photo: CTBTO)

The CCAUV works to improve the global comparability of measurement

Marine noise generated by cargo ships or industrial activity in sea water doubles each decade. It can be monitored using **underwater acoustic techniques**. Three dimensional measurements of ocean currents and temperature are important indicators of **climate change**.

Credit : Dr Rajiv Desai

Airborne sound: hearing



Ultrasound: Comparison of ultrasonic power using hydrophones.

Global comparability of measurements for **safety and health**:

- **Environmental monitoring**
- Medical and diagnoses
- **Occupational safety**
- Machine testing
- **Shock protection**

Credit : pixabay

Low-frequency vibration transducers are widely used for monitoring earthquakes (e.g. in the Global Seismographic Network)

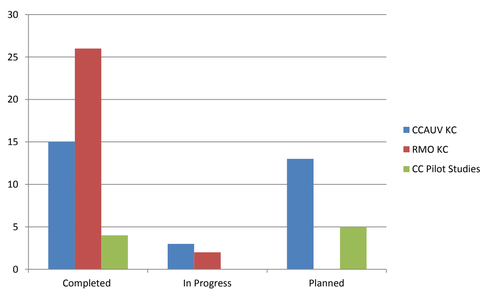
Credit : Wikipedia

In automotive crash testing, **dynamic measurements** are essential. (**Photo: Japan Automotive Research Institute**)

Credit : EURAMET TC-AUV Report to CCAUV11

Infrasound and **ultrasound** on hearing, mental health and wellbeing

CCAUV KCs and CMC Statistics



The planning process for KCs involves careful deliberation **to optimize resource requirements** needed to respond to the needs of its **stakeholders**.

Repeat CC KCs ⟹ 10-year cycle.

CMC: 1174 CMCs of which 870 are linked to a KC supported by the CCAUV

Participants in the CCAUV.A-K3 KC