



Critical points of intercomparison

Organizing Committee

LOGISTICAL ASPECTS

SITES

- S1,S2 → easy
- S3 → NOT easy: private house, mountain region

LABORATORIES

- AOSTA, IVREA, MILAN, Casaccia (ROMA)
- ~ 30 active instruments of different institutions
- Hundreds of CR39 used in the sites and for calibrations

OPERATIONAL

- To deal with different passive participant devices
- Managing of the transits

ACTIVE INSTRUMENTS (1)

CALIBRATION

- Calibration Factor: not constant in function of the radon concentration
uncertainty of CF → managed by all the instruments ?
- Calibrated instruments give radon concentrations significantly different
- Calibration schedule
- Calibration concentration level (<> environmental levels
extrapolation to low concentrations ?)

BACKGROUND

- Background uncertainty → managed by all the instruments ?
better inside or outside the instrument parameters?
- Background schedule

ACTIVE INSTRUMENTS (2)

IN FIELD

- Long measurements (electronic problems, memory, AC Adapter, stability?, in flow instruments? ...)
- Environmental parameters (humidity, altitude...)
- Radon/Thoron mixed atmosphere

METROLOGICAL ASPECTS

- low level reference concentration
- Only secondary level calibrations ?
- Thoron, PAEC?

RADON PASSIVE DEVICES (1)

A list of problems can influence radon measurements → **in field - in calibration chamber?**

- Temperature, humidity, lightness
- Dose rate
- Altitude
- Long period of measurement
- Fading, and track overlap in CR39, discharge of electrets
- Thoron
- Equilibrium factor
- MDA
- Calibration
- Background

RADON PASSIVE DEVICES (2)

RADON PROOF BAGS?



Unico set



Esposizione media



Transitorio media



Esposizione bassa



Transitorio bassa



Esposizione Toron e Transitorio Toron



Unico set



Esposizione bassa



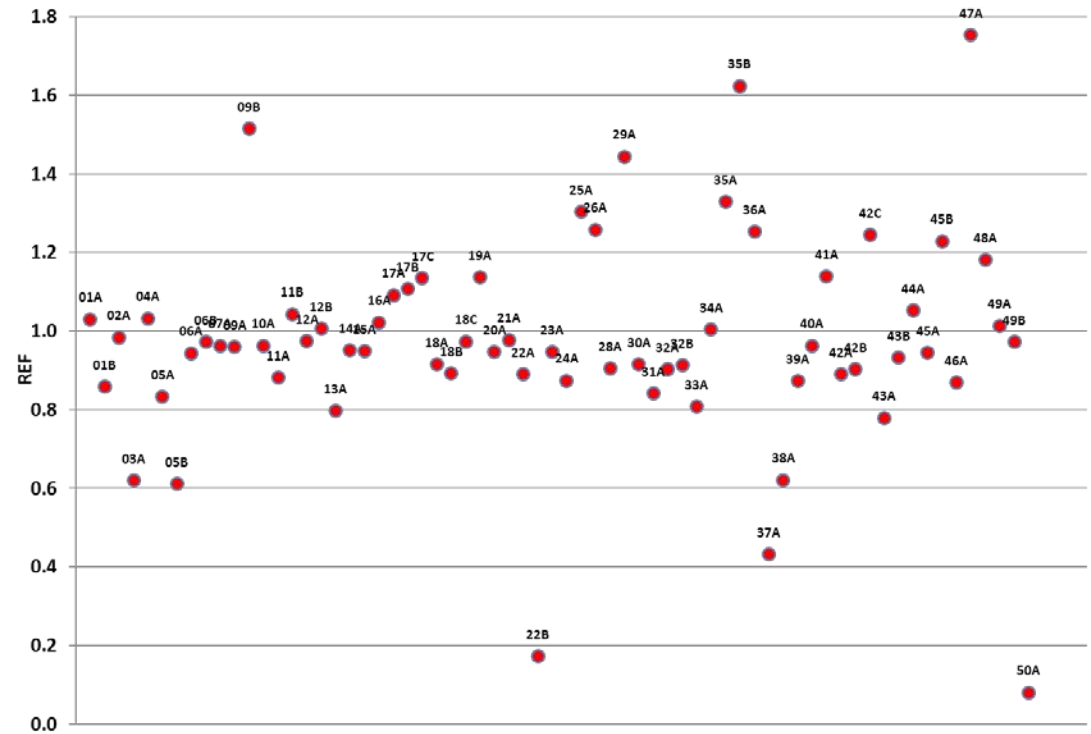
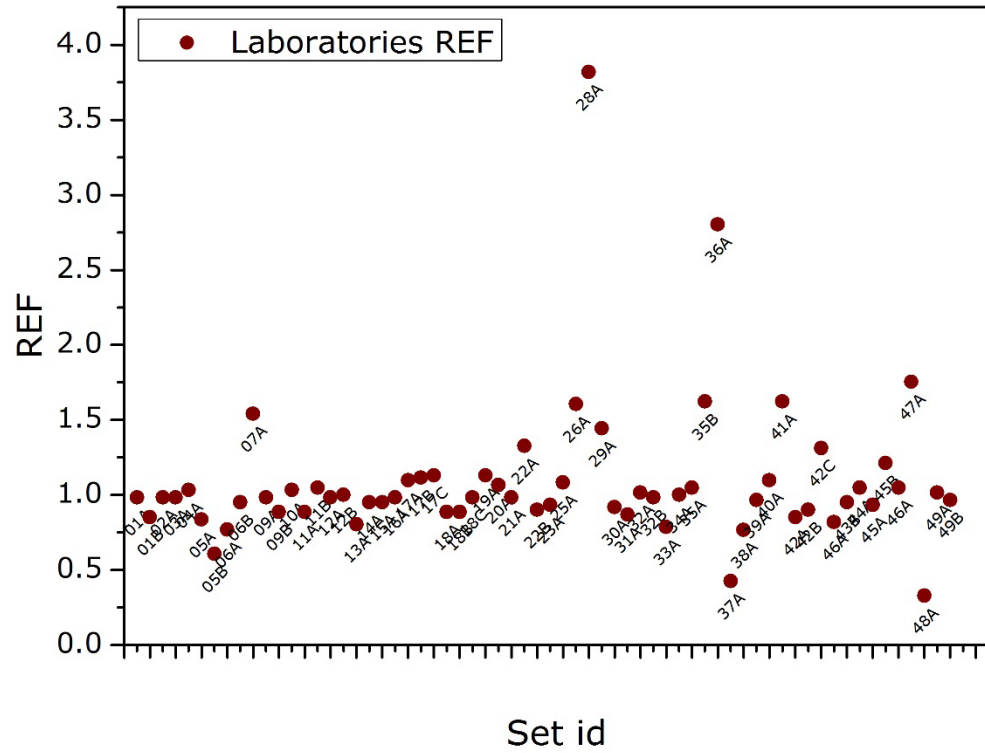
Transitorio bassa



DATA ANALYSIS

- **Electrets** → problem with transit, but also with devices used
- **Outliers** → how to do?
- **Exposure vs concentration** → calculation
→ copy and paste
→ dates

Exposure 1



RADON PASSIVE DEVICES

FORMAT

- Mistakes in the filling in the form
- Not very clear information on devices' sets with apparently same characteristics

MANAGING TRANSITS

- Storage of transits in a room at a mean radon concentration of $141 \pm 14 \text{ Bq/m}^3$

ANOTHER INTERCOMPARISON?

- Do we really need it?
- What shall we do?
- How often could we do it?

WARNING!!!!

Email 1st September 2017

Exposure site 2 (Storage room on the basement)

Start	25/10/2016 - 18.00	→	25/11/2016 – 18.00
End	28/04/2017 - 14.00		
Exposure (kBq·h·m ⁻³)	1731		
Concentration (Bq·m ⁻³)	469		
Equilibrium factor	0.56		
Temperature (°C)	21 °C		
Pressure (hPa)	997 hPa		
Relative Humidity (%)	52 %		

SORRY

