



Accurate Monitoring of Surface Ozone  
Virtual Workshop  
5-9 October 2020

## Task Group 4: Managing Change

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# Discussion Topics

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1. Task Group Questions
2. Review of Survey Responses and Comments
3. Discussion of individual questions and other points raised
4. Consensus opinion – taking into account survey responses

# Task Group 4 Questions

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## 4 Managing change

a) What do you think are the major risks in implementing this change, and how best to mitigate them?

b) How do we deal with historic data?

**Other related questions to be answered?**

c) Timeline for change?

### 3. Survey Comments: Risk and Mitigation

#### Risks and mitigation

No reply (50%)

Mistakes due to coexistence of different values (28%)

Air Quality: higher number of exceedance (10%)

Lack of understanding (5%)

Impact on Trends

Change Process

# Survey Comments: Risk and Mitigation

## 1) Confusion due to coexistence of different values

- That mitigation brings a chaos of data with old and data with new cross section
- I am not sure if all groups measuring ozone will implement the change, or at least not at the same time, even if it is well communicated. There is a risk that data sets using different values of the cross section will be around, which maybe is not even documented in the metadata.
- Risk: Uniform confirmatory/verification process once implementation has taken place, irregular readings upon change – therefore window of data will be disputed, Mitigation: Uniform SOP prior to implementation, outreach/education/training in advance of change
- Changes to be made in the SRP control software
- make mistakes in the changes in the instrumentation that performs the calibration / measurement. the way to mitigate errors can be done through proper training.
- The main risk will be data sets using different absorption cross sections without the corresponding metadata. This must be avoided.
- mix of old and new values, misinterpretation of trends
- Mixing data using both values.

# Discussions and Consensus Opinion: Risks and Mitigation

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## 1) Risk: Confusion due to coexistence of different values

### Mitigation:

- a) Clearly identify which ozone cross section is being used
- b) Introduce data flagging /meta data description of which ozone cross section is used
- c) Provide information and guidance
- d) Set up Change Management Task Group over period of Change and provide clear timeline for change

# Survey Comments: Risk and Mitigation

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## 2) Effect on Trends

- Step change in data or disjoint in concentrations shown in previous studies although at less than 2% I think this will be minimal
- Effect on trends and established national standards/objectives
- interruption of consistency in long records, changes to policies
- Introducing false trends in time series by not uniformly treating all surface data.
- The major risk is that the change will not be implemented uniformly and that measurement groups will not properly record and advertise when/if the change was made. This will lead to errors in long-term trend detection, and to errors when comparing observations across different networks.
- The TOAR database can help with identifying stations with the change and can be used to apply corrections to datasets to account for the change.
- Support from the WMO, EPA, TOAR, and other archives are needed to track and implement changes and to assure the continuation of records.

# Discussions and Consensus Opinion: Risks and Mitigation

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## 2) Risk: Effects on Trends

### Mitigation:

- a) Clearly communicate change
- b) Introduce data flagging /meta data in databases
- c) Introduce data flagging /meta data on data from providers
- d) Clearly identify step change will occur if data not back-corrected

# Survey Comments: Risk and Mitigation

## 3) Change Process Control

- Inconsistency in timelines; identify how long it will take everyone to implement
- harmonization in terms of how to change, when to change
- That people will be unaware of the change or not know what to do. Information is key!
- Misinterpretation due to unclear/unharmonised implementation date
- How the change will occur and how this will filter down to all relevant parties, and how long this will take. Many people only calibrate their own local reference every 2 or so years so it is likely it might take this long to filter down. Suggest also informing all ISO17025 accreditation bodies of the change so they can pass on to all parties accredited for ozone related activities.
- It is important to make sure that the information gets passed down, not just to the metrology community or to makers of ozone instruments, but to the research community, universities, private sector, and anyone whose research may have a direct impact on local/regional/national air quality policy.
- Is the meeting goal to end with consensus and clear direction on a path forward? Is the expectation that the change would be implemented at the same time globally?
- From an EU perspective, all MS, DGENV, AQUILA and NRLs need to agree the best way forward, and implement together, at the start of a calendar year. A discussion needs to be held regarding historic data, comparison against limit and target values. Similarly, the health assessments are set using historic datasets, so these will also need to be reconsidered.

# Discussions and Consensus Opinion: Risks and Mitigation

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## **3) Risk: Change Process Control**

### **Discussion:**

- a) Big Bang Change – everything on one day**
- b) Start, transition period, end dates (use of calibration QA/QC systems in place to role out change)**

### **Mitigation:**

- a) Set up a Change Management Task Group, including stakeholders**
- b) Develop and plan for implementing change**
- c) Identify factors that will limit speed of change and plan accordingly**
- d) Take into account time for documentary changes and well as changes in the field**

# Survey Comments: Risk and Mitigation

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## 4) Impact on regulatory limit compliance

- If threshold levels are based on evidence in epidemical studies, then they need to be adapted as well. This will lead to strange numbers. Otherwise, the number of exceedances will increase
- Mistakes and possibly will have to revisit allowed level of ozone measurements.
- The countries and stakeholders will likely to have difficulties in funding issue which follows the implementation of the change
- In the US, potential affect on ozone design values and exceedances of the ozone national ambient air quality standard (NAAQS). After implementation, the affect on design values will need to be tracked and increases identified.
- Potential impact on US ozone exceedances of the US national ambient air quality standard

# Discussions and Consensus Opinion: Risks and Mitigation

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## 4) Impact on regulatory limit compliance

### Discussion:

- a) Impact and perception will be different in different groups, e.g. areas which are well away from compliance limit vs. borderline cases
- b) Focus is on providing most accurate values and uniformity of ozone measurement throughout the atmosphere

### Mitigation:

- a) Highlight benefits of change (publications, including go to technical paper on change)
- b) Inform stakeholders on potential impact
- c) Focus is on providing most accurate values and uniformity of ozone measurement throughout the atmosphere

# Survey Comments: Risk and Mitigation

## 5) Lack of understanding

- Fail at the regulator, so it should be well discussed with given rationale
- Risk- To make our top management understand this change. We should explain them clearly the effect and the benefit of this change.
- People could be very distrustful of authority and could interpret the change as a way to artificially manipulate the measurements in their disfavor.
- Understanding of the common citizen about O3 air quality has increased will need more communication
- Implying that refining the cross-section value is a bigger deal than it is. Emphasise that accuracy is increased, and continuity can be maintained with minimal effort
- The major risk is stakeholders do not understand the change
- Misinterpretation due to unclear/unharmonised implementation date
- This should not be overcomplicated. We have a better value for the cross-section; we should use it. Users need to be educated on the nature of conventional scales. This can be done in a few sentences.
- I am representing the air quality network side and my personal opinion that it is a lot of work for this change to happen. Based on the uncertainty budget in the network I am also not so sure we actually gain so much by implementing a new coefficient. So it would be very good if you could convince us who are skeptical that all this work and effort will be worth it.

# Discussions and Consensus Opinion: Risks and Mitigation

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## 5) Lack of understanding

### Mitigation:

- a) **Go-to technical paper on change; Open access; to be published**
- b) **Develop information/publication for users, managers, public**
- c) **Work together to coordinate availability of information and network to provide translations**
- d) **Scientists will need to be able to identify what data they are dealing with**

# Discussions and Consensus Opinion: Risks and Mitigation

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## 3) Risk: Change Process Control

### Discussion:

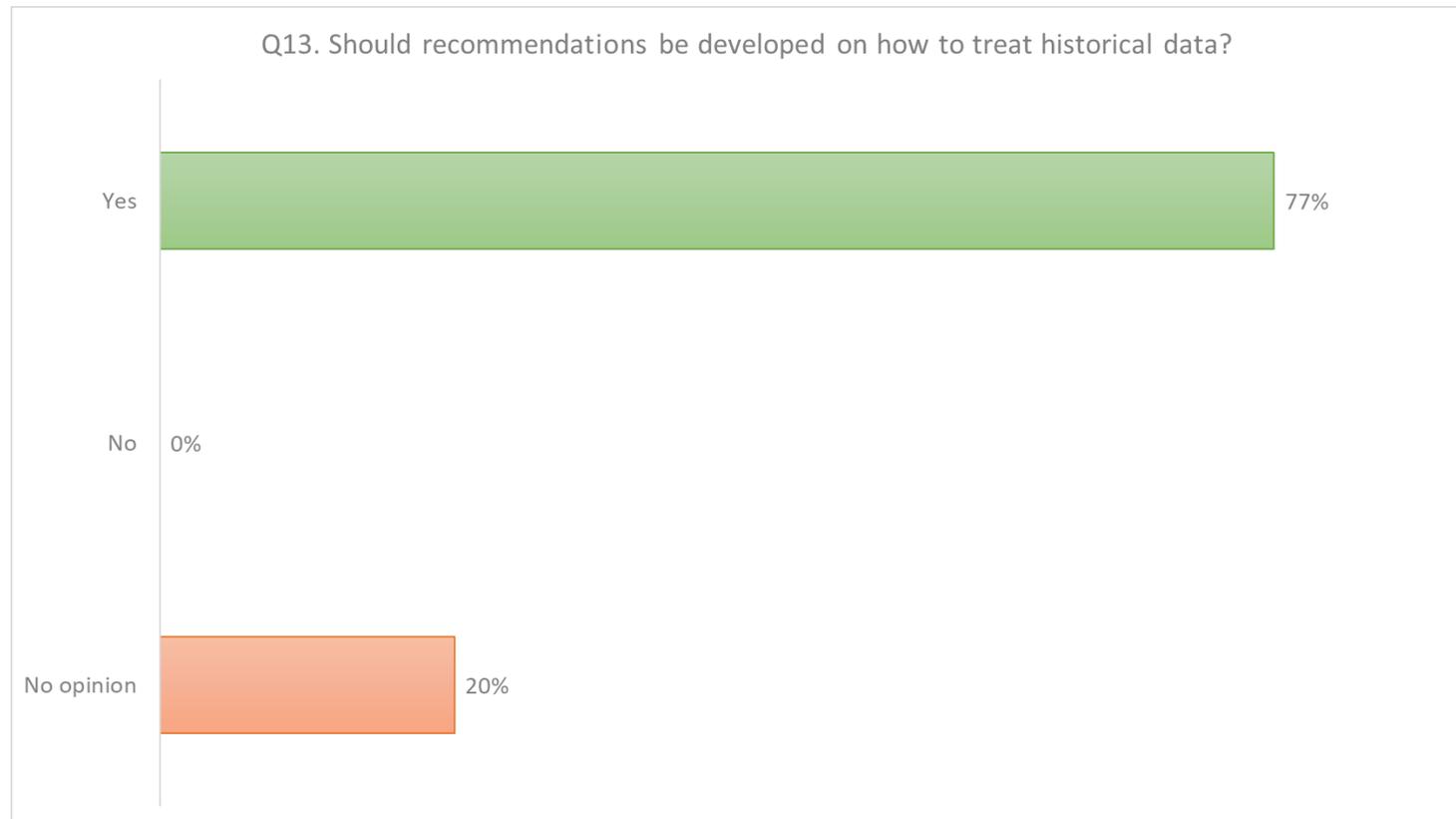
- a) **Big Bang Change – everything on one day**
- b) **Start date, transition period, end date (use of calibration QA/QC systems in place to role out change)**

### Mitigation:

- a) **Set up a Change Management Task Group, including stakeholder groups**
- b) **Develop and plan for implementing change**
- c) **Identify factors that will limit speed of change and plan accordingly**
- d) **Take into account time for documentary changes and well as changes in the field**

# Survey Responses: Historic Data

## Guidelines for treating Historic data



# Survey Comments: Historic Data

Please identify historical data that would need to be corrected following the change

## Comments around whether correction should be undertaken:

- Who said any data would need to be corrected?
- I am not a proponent of correcting historical data.
- In direct response to Q13, this probably isn't the role of BIPM, but the countries directly affected by the change. UK has nearly 50 years of automatic Ozone data that will potentially be affected by this change. The pros and cons of undertaking this reprocessing need to be carefully considered before agreeing to do it.
- Not recommending changes to historical data; Previous US ozone design values

## Data sets that could/should be corrected?

- surface ozone measurements: e.g. TOAR-1
- Ozone concentrations recorded by air quality monitoring agencies
- Consensus on how far back corrections should be applied should be considered
- Depending on % of difference, correction could be applied to our Canada wide ozone data for many years, up to 30 years.
- in Canada, our data archives dates back to 1977 using Dasibi analyzers.
- If change to historical data is necessary, correction should be applied to all the ozone measurements that applied the older cross section.

# Survey Comments: Historic Data

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**Please identify historical data that would need to be corrected following the change**

## **Data sets that could/should be corrected?**

- The ground level ozone measurements
- Good air quality networks have historical maps or statistics they need to clarify the change
- GAW trend data
- Atmos modeling datasets, inventories, which may be based on historical measurements
- Ozone data for Colombia
- Please see the data sets listed in TOAR-Observations by Tarasick and Galbally et al., 2019:  
<http://doi.org/10.1525/elementa.376>
- NOAA surface ozone network
- All or none (more likely none); AOT-40?

# Discussions and Consensus Opinion: Treating Historic Data

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## Issues:

- **Opinions differ on whether corrections will be made**
- **No recommendation from this group on whether correction should/should not be made**

## Consensus:

- a) Make communities aware that there will be a step change if data uncorrected**
- b) Recommendations on correcting data is user group specific – but what is going to be done should be clearly identified**

# Timeline for Change

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## Issues:

- **Need to coordinate documentary change as well as change in the field**
- **2 years for documents; 2 years for transition in field?**
- **Data for TOAR II will be taken in 2020 and 2021**

## Consensus:

- a) Compare with TG 2 opinion**
- b) TOAR will need to take decision if it corrects data (from 2020 and 2021) to the new cross section for publication in 2024**