

# *Infrastructure Perspective and Thoughts on AI*



WMO OMM

World Meteorological Organization  
Organisation météorologique mondiale

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# The World Weather Watch - Successful application of weather and climate services depend on a functioning meteorological value cycle

## Global Earth System infrastructure



# Considerations 1

Why openness, transparency, traceability and interpretability? This is foundational to the World Weather Watch (and its expansion)

- To Prevent Misleading Information
- To enable the effective and trustworthy use
- To achieve explainable and interpretable AI-ESP

Those 3 points require a clear understanding of the methodology, underlying data, and performance characteristics. This also includes understanding how the training dataset affects the AI-ESP model forecast capabilities.

# Considerations 2

## Public and Private Sectors to engage and work together in a Shared, Open Platform for AI-ESP

There has to be commitments to practical standards and regulations

There has to be commitments to transparency and sustainability :  
This commitment must include **long-term sustainability** of the engagement

There has to be an alignment with various policies such as the WMO's Public-Private Engagement (PPE) policy, WMO Unified Data Policy etc

The alignments and commitments required are not one-way....  
They are both ways which means that the WMO community will need more nimbleness, agility and flexibility.

# Considerations 3

Ensuring AI-ESPs are Trained on Open, High-Quality Data, and Data Accessibility:

- WMO Unified Policy for the International Exchange of Earth System Data which is enabled by the WMO Information System (WIS) 2.0
- Metadata for Data Quality: WIGOS metadata is essential for ensuring "known quality" of observations and supporting long-term inter-comparability, which is vital for high-quality training data for AI-ESP systems.
- Considering Commercial Arrangements: When engaging with commercial providers, we must carefully consider ownership of data and metadata and any constraints on their use and sharing, ensuring alignment with WMO's data sharing principles.

# Considerations 4

## Transformative potential of AI

- In Addressing Capacity Challenges faced by developing countries, Least Developed Countries (LDCs), and Small Island Developing States (SIDS). This includes bridging the digital divide, allowing access to services based on the latest science and technology worldwide.
- In providing Enhanced Predictive Capabilities which will accelerate achieving the goals of the UN Early Warnings for All (EW4All) initiative
- In Reducing Computational Burden
- In Filling Observational Gaps
- In Supporting Downstream Applications
- In Knowledge Transfer and Training

# Considerations 5

- Allowing Non-Traditional Sources' Contribution to WIPPS: Non-traditional sources (private sector entities, academic sector entities, or non-partner international/intergovernmental organizations) are envisioned to contribute to WIPPS, especially through AI-based solutions, to support public weather, hydrological, and climate services. The components of the 'how' are explored this morning and will continue to be explored over the coming months.
- Do we need a 'CGMS' for AI?
- Through better Support for Decision-Making: AI can potentially automate forecasts and warnings and generate optimal user-focused impact-related indices, which directly support NMHSs in providing critical information for disaster risk reduction. However, their reliability and ethical implications for decision-making need careful consideration.



*Final word, quoting our colleague Charlie Ewen (from UKMO) in a LinkedIn post*

- 3. Smart companies are recognising that the strategic need is actually about being able to move faster and innovate and adopt technology more effectively. AI is the trigger and catalyst, not the 'thing'
- 4. Fast technology adoption demands action for skill sets, mindsets and change.
- 5. Even if AI isn't changing your business, it is changing society
- 6. The key challenges to most organisations are not ideas, platforms or prototypes, it is adoption.

*Thoughts ?*



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