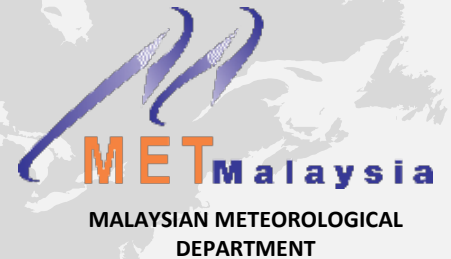


MINISTRY OF NATURAL RESOURCES AND
ENVIRONMENTAL SUSTAINABILITY



EARLY WARNING SYSTEM (EWS)

Dr Ahmad Fairuz Bin Jamaluddin
Director
National Climate Centre (NCC)
Malaysian Meteorological Department

End-to-end Early Warning System

Four Components of end-to-end Early Warning System

DISASTER RISK KNOWLEDGE

* Knowledge of the relevant hazards and the vulnerabilities



MONITORING AND WARNING SYSTEM

* A technical capacity to monitor hazard precursor, to forecast the hazard evolution, and issue warnings



DISSEMINATION & COMMUNICATION

* Understandable warnings, and prior preparedness information, to those at risk



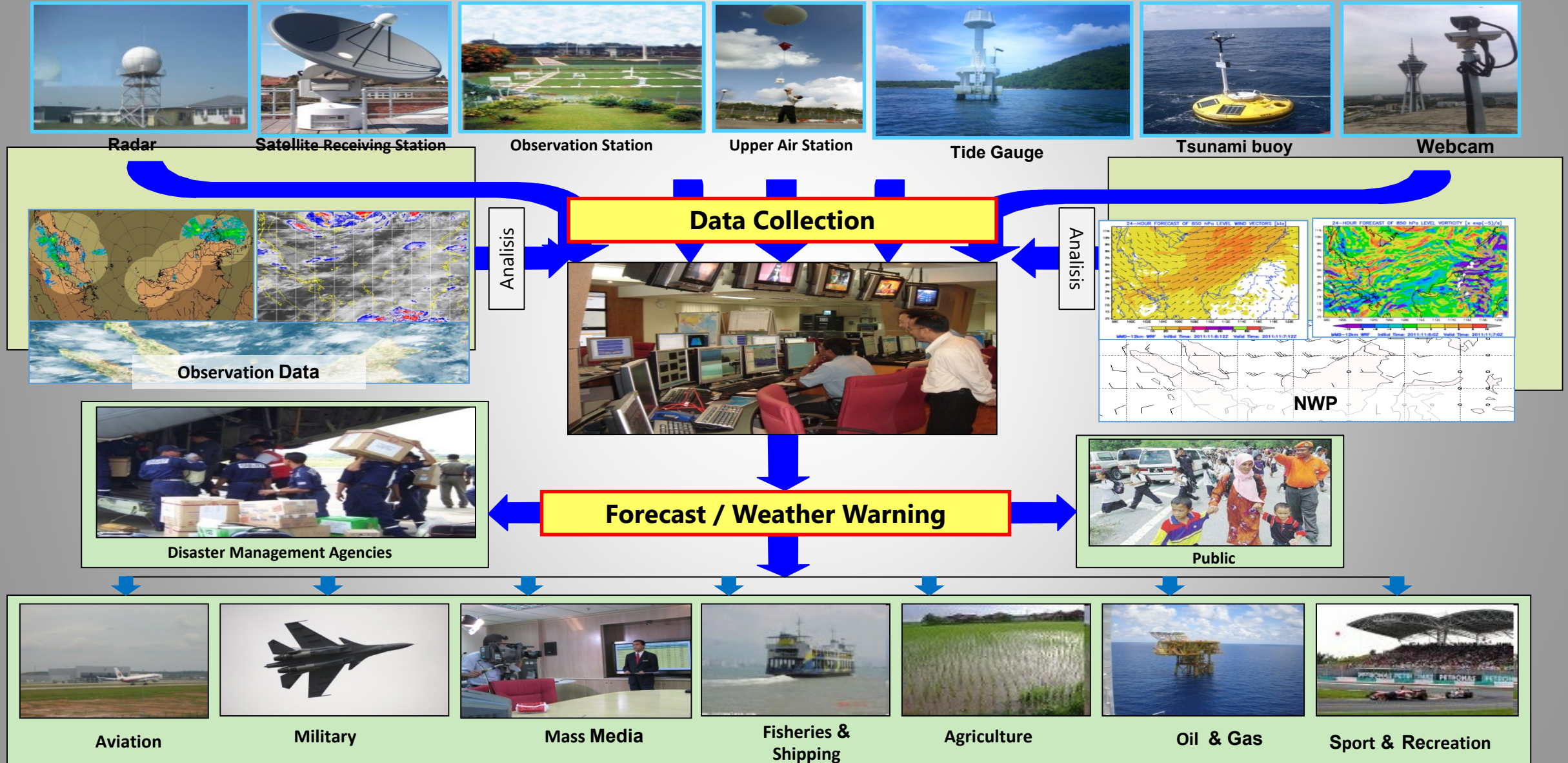
RESPONSE CAPACITY

* knowledge, plans and capacities for timely and appropriate action by authorities and those at risk

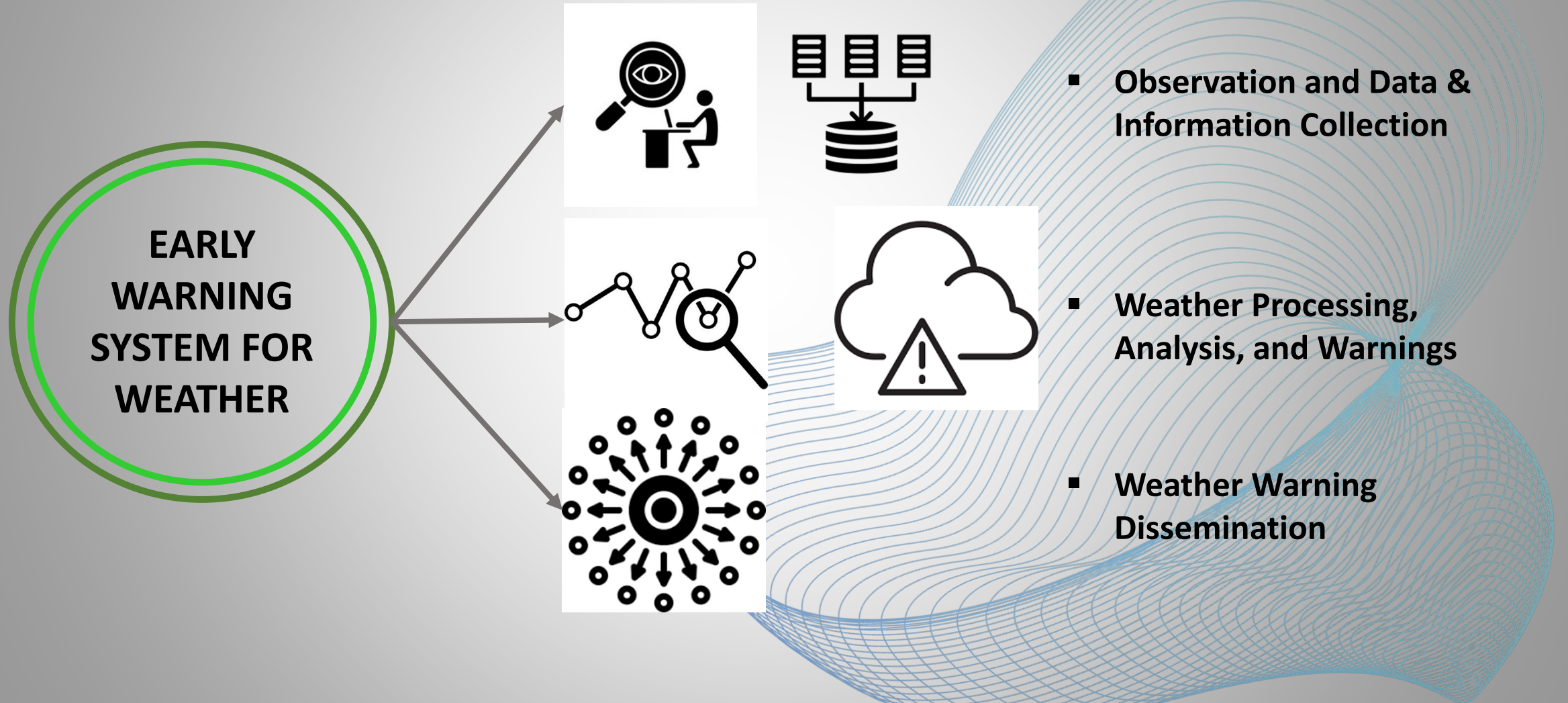


Sekolah Kedah, Perlis Tutup Lagi Sebab Cuaca Panas

Early warning system for multiple hazard



EARLY WEATHER WARNING SYSTEM FOR WEATHER



MALAYSIAN NATIONAL TSUNAMI EARLY WARNING SYSTEM



MNTEWS

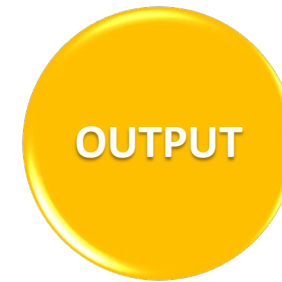
DATA COLLECTION COMPONENT



DATA PROCESSING COMPONENT

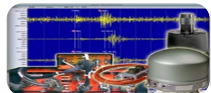


DISSEMINATION AND RESPONSE COMPONENT



8 MINUTE

REAL TIME OBSERVATION (24/7)



• SEISMIC NETWORK (EARTHQUAKE)



• TIDAL GAUGE NETWORK (TSUNAMI)



• TSUNAMI COASTAL CAMERA



• PTWC/JMA/RTSP/SCS

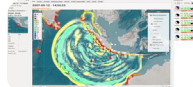


• GSN/IRIS – LINKAGE

APPLICATION AND SOFTWARE



• SEISCOMP - EARTHQUAKE



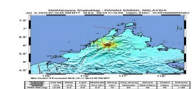
• TOAST – TSUNAMI MODELLING



• ADMIS-DSS – DECISION SUPPORT



• IDMS - DATABASE



• SHAKEMAP

REDUCE TSUNAMI IMPACT



• SMS, EMAIL DAN FAX



• MYGEMPA/MET WEB/EMSC



• TSUNAMI SIREN NETWORK

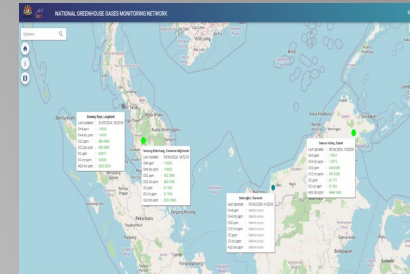
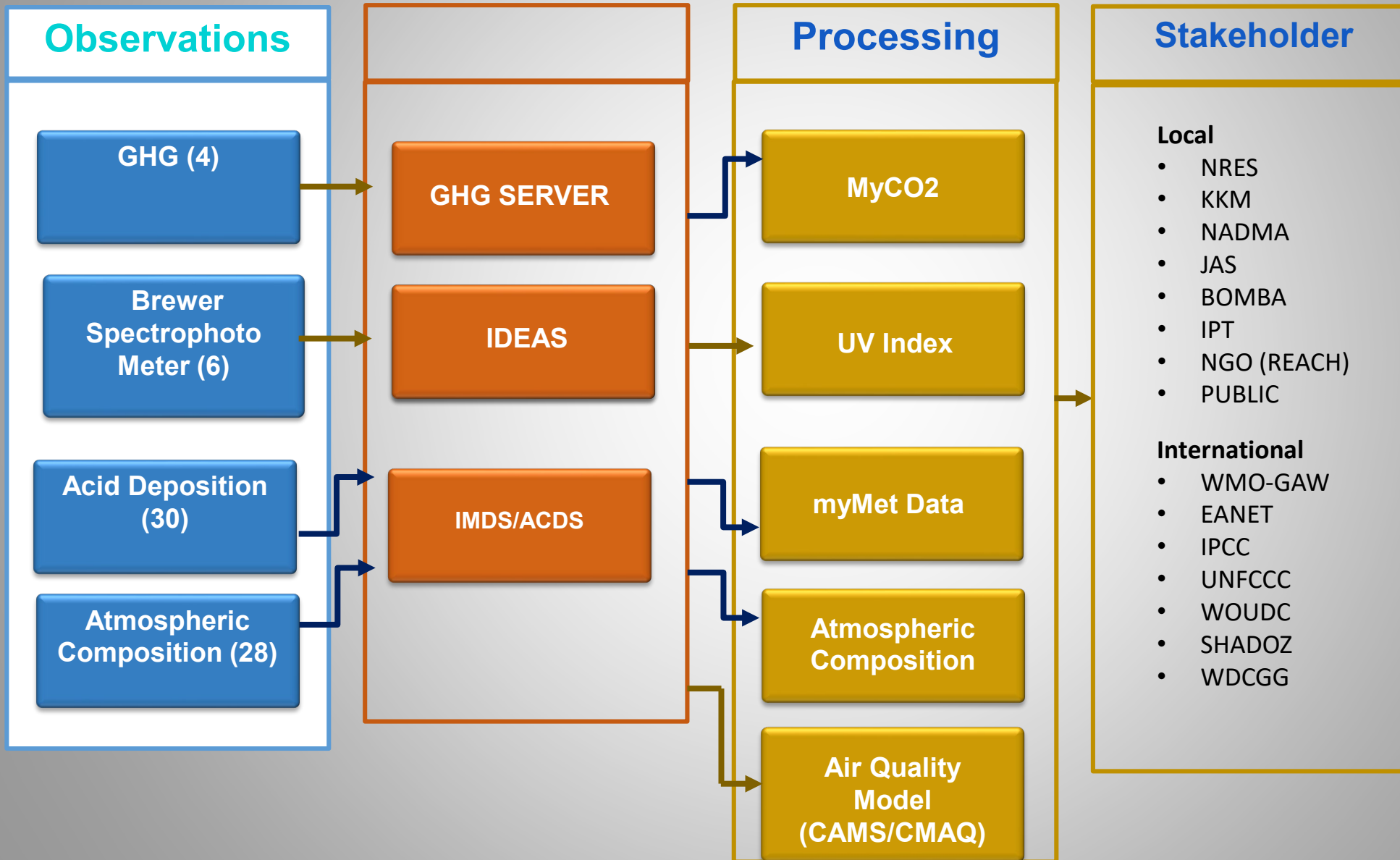


• PUBLIC AWARENESS

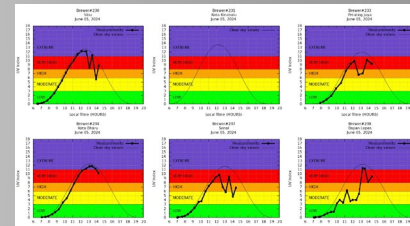


• SOCIAL AND MASS MEDIA

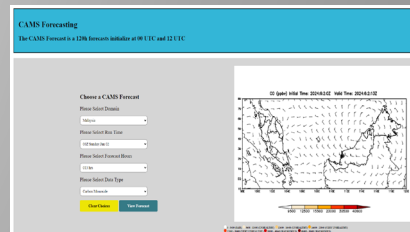
EARLY WARNING SYSTEM FOR ATMOSPHERIC POLLUTANTS



Background GHG



UV Indexes



Air Quality Forecasting

ISSUES AND CHALLENGES



- ✓ Lack of community awareness, need more training, workshop and seminar
- ✓ Delays in delivering warnings due to limited accessibility and inadequate telecommunications infrastructure
- ✓ High risk communities is not full define due to incomplete risk assessment
- ✓ Lack of collaboration between private and government agencies in managing disaster-related risk

THANK YOU