

**Correction coefficient dynamically
adjusted according to the latest time data**

Real-time observation data

Radiosonde data R_{radio}
Lidar data R_{LiDAR}
MWR data R_{MWR}
Satellite FY4B data $R_{\text{satellite}}$



Lidar data deviation $D_{\text{LiDAR}} = R_{\text{LiDAR}} - R_{\text{radio}}$
Lidar data correction coefficient C_{LiDAR}
$$C_{\text{LiDAR}} = (|D_{\text{satellite}}| + |D_{\text{MWR}}|) / [2 * (|D_{\text{satellite}}| + |D_{\text{MWR}}| + |D_{\text{LiDAR}}|)]$$

MWR data deviation $D_{\text{MWR}} = R_{\text{MWR}} - R_{\text{radio}}$
MWR data correction coefficient C_{MWR}
$$C_{\text{MWR}} = (|D_{\text{satellite}}| + |D_{\text{LiDAR}}|) / [2 * (|D_{\text{satellite}}| + |D_{\text{MWR}}| + |D_{\text{LiDAR}}|)]$$

FY4B data deviation $D_{\text{satellite}} = R_{\text{satellite}} - R_{\text{radio}}$
FY4B data correction coefficient $C_{\text{satellite}}$
$$C_{\text{satellite}} = (|D_{\text{MWR}}| + |D_{\text{LiDAR}}|) / [2 * (|D_{\text{satellite}}| + |D_{\text{MWR}}| + |D_{\text{LiDAR}}|)]$$

**Synergy of ground-based remote sensing
and satellite data**



Synergetic data $S_{\text{RH}} =$
$$R_{\text{LiDAR}} * C_{\text{LiDAR}} +$$

$$R_{\text{MWR}} * C_{\text{MWR}} + R_{\text{satellite}} * C_{\text{satellite}}$$