remote sensing

MDPI

Supplementary Information

Particulate Matter Concentrations over South Korea: Impact of Meteorology and Other Pollutants

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Figure S1. Diurnal distribution of aerosol optical depth (AOD) during the severe haze events in (a) January and (b) February–March 2019. The vertical dotted line in (b) indicates the separation between the two months.

Figure S2. (a) Surface temperature and relative humidity profiles and (b) surface pressure and wind profiles on 13-14 January 2019; the dashed lines indicate isotherms. (c) Surface temperature and relative humidity profiles and (d) surface pressure and wind profiles on 4-5 March 2019. The dashed lines indicate isotherms, the white spaces represent the absence of data, and the solid colored lines represent isobars.

Figure S3. Diurnal distribution of the particulate matter (PM) concentration from January to March 2020. (a) $PM_{2.5}$ concentrations and (b) PM_{10} concentrations.

Figure S4. Trajectory frequencies (percentage of airmass transport) over the four sites from 20 February to 10 March 2020.

Figure S5. Trajectory frequencies (percentage of airmass transport) over the four sites during 1-15 January 2020.

Figure S6. Spatial distribution of seasonal mean wind speed (m s^{-1}) and direction over East Asia (2015–2020). (a) spring, (b) summer, (c) autumn, and (d) winter.

Figure S7. Mean annual distribution of the meteorological parameters impacting air pollution in South Korea (2015–2020). The straight red line indicates the linear fit of the values. (a) Temperature, (b) specific humidity, (c) precipitation, (d) wind speed, (e) pressure, (f) ground heating, (g) horizontal (zonal) wind vector, (h) vertical wind vector, (i) sensible heat flux, and (j) latent heat flux.

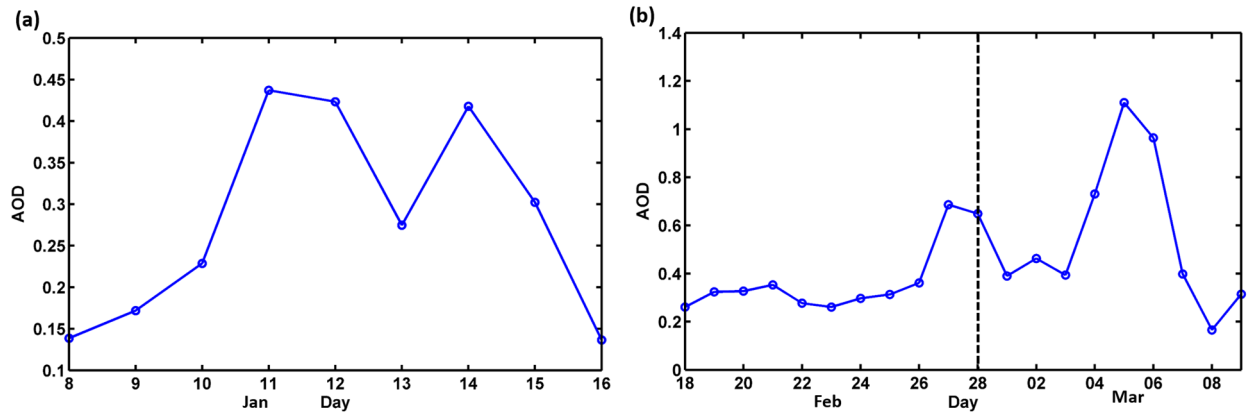
Figure S8. MLR model results between CO and the meteorological parameters. The colors represent the type of the meteorological parameter and the size indicates the magnitude of the influencing parameter. R^2 represents the fitting effect of the model, the F-test determines the significance of the model, and the t-test determines the significance of the independent variables.

Figure S9. MLR model results between BC and the meteorological parameters. The colors represent the type of the meteorological parameter and the size indicates the magnitude of the influencing parameter. R^2 represents the fitting effect of the model, the F-test determines the significance of the model, and the t-test determines the significance of the independent variables.

Figure S10. MLR model results between SO_4 and the meteorological parameters. The colors represent the type of the meteorological parameter and the size indicates the magnitude of the influencing parameter. R^2 represents the fitting effect of the model, the F-test determines the significance of the model, and the t-test determines the significance of the independent variables.

Figure S11. MLR model results between SO_2 and the meteorological parameters. The colors represent the type of the meteorological parameter and size indicates the magnitude of the influencing parameter. R^2 represents the fitting effect of the model, the F-test determines the significance of the model, and the t-test determines the significance of the independent variables.

Figure S12. MLR model results between O_3 and the meteorological parameters. The colors represent the type of the meteorological parameter and the size indicates the magnitude of the influencing parameter. R^2 represents the fitting effect of the model, the F-test determines the significance of the model, and the t-test determines the significance of the independent variables.



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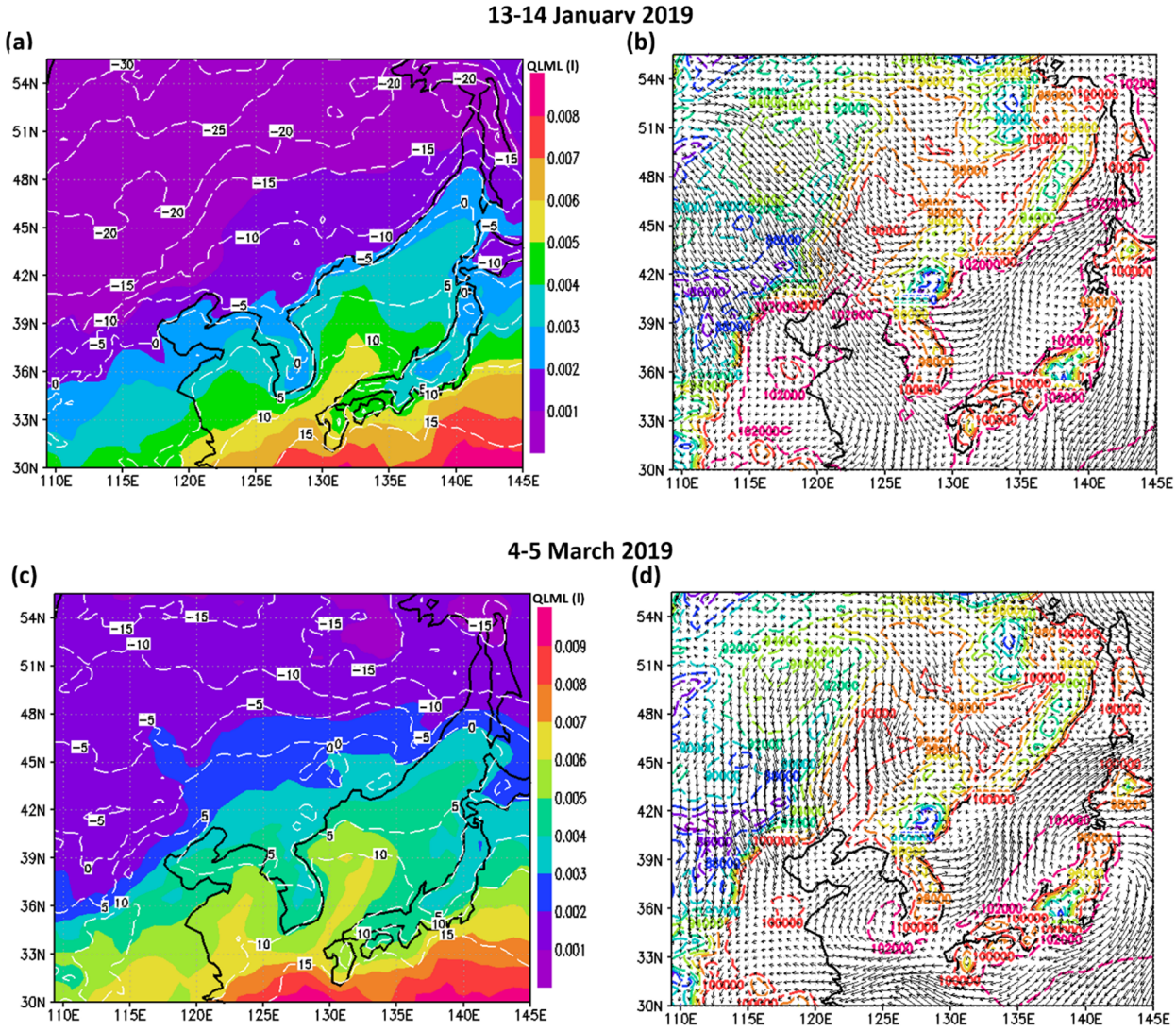

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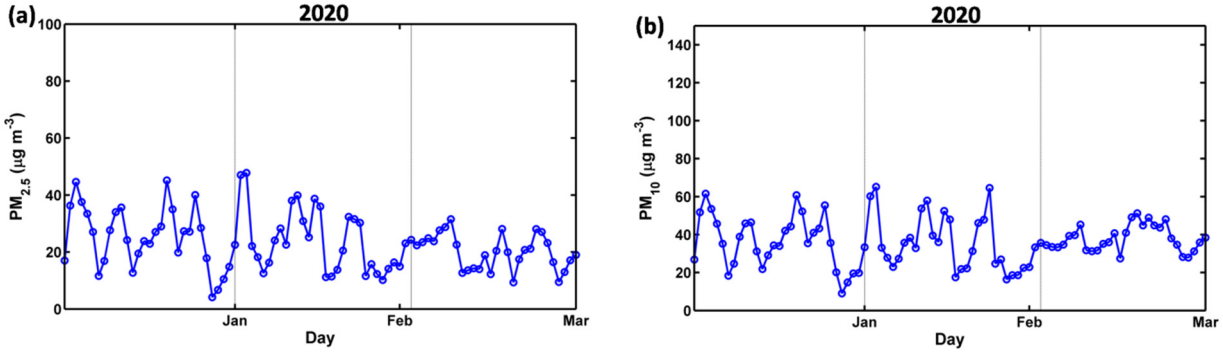

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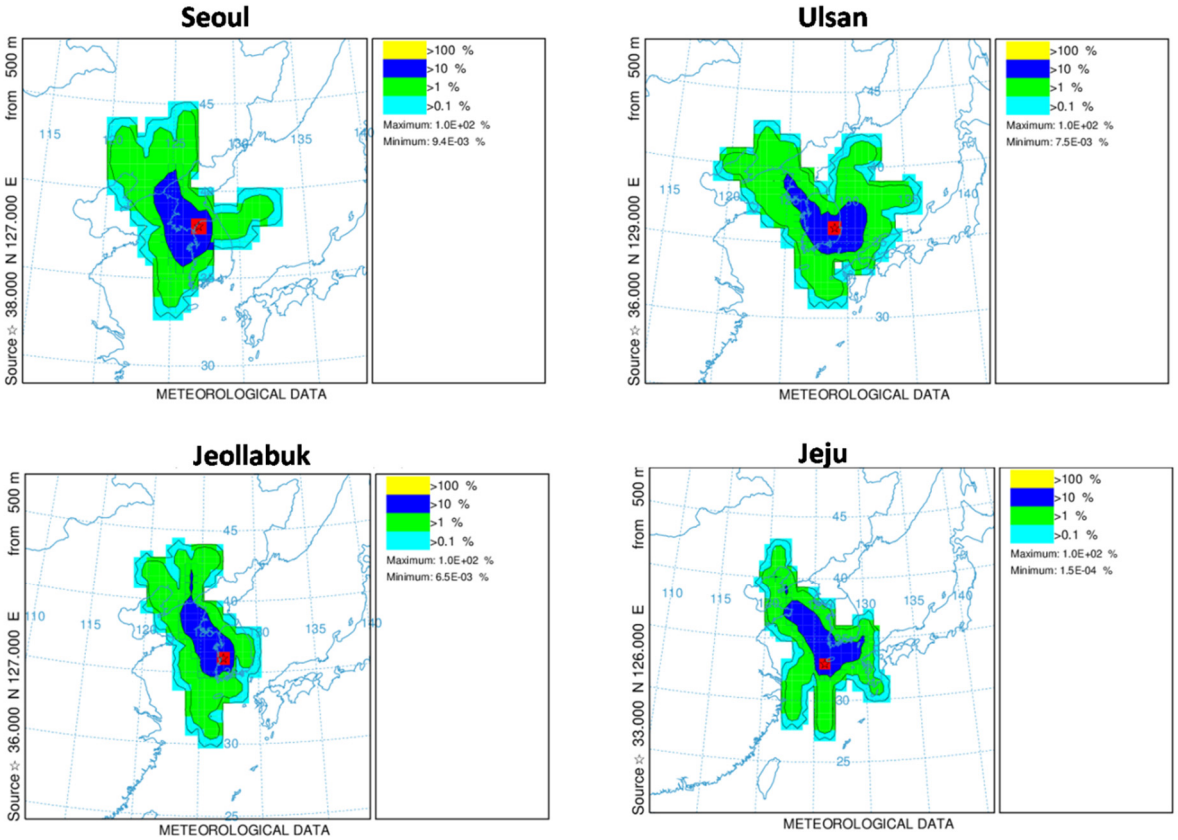

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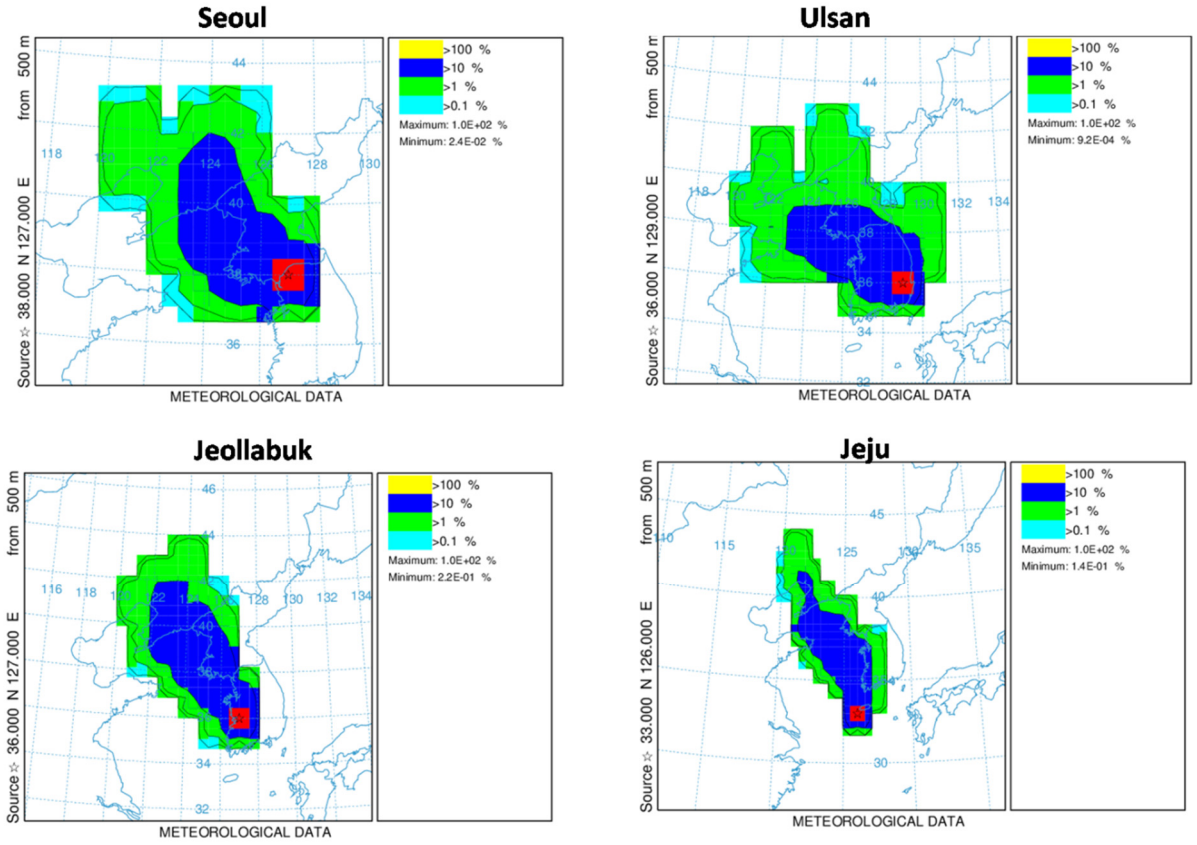
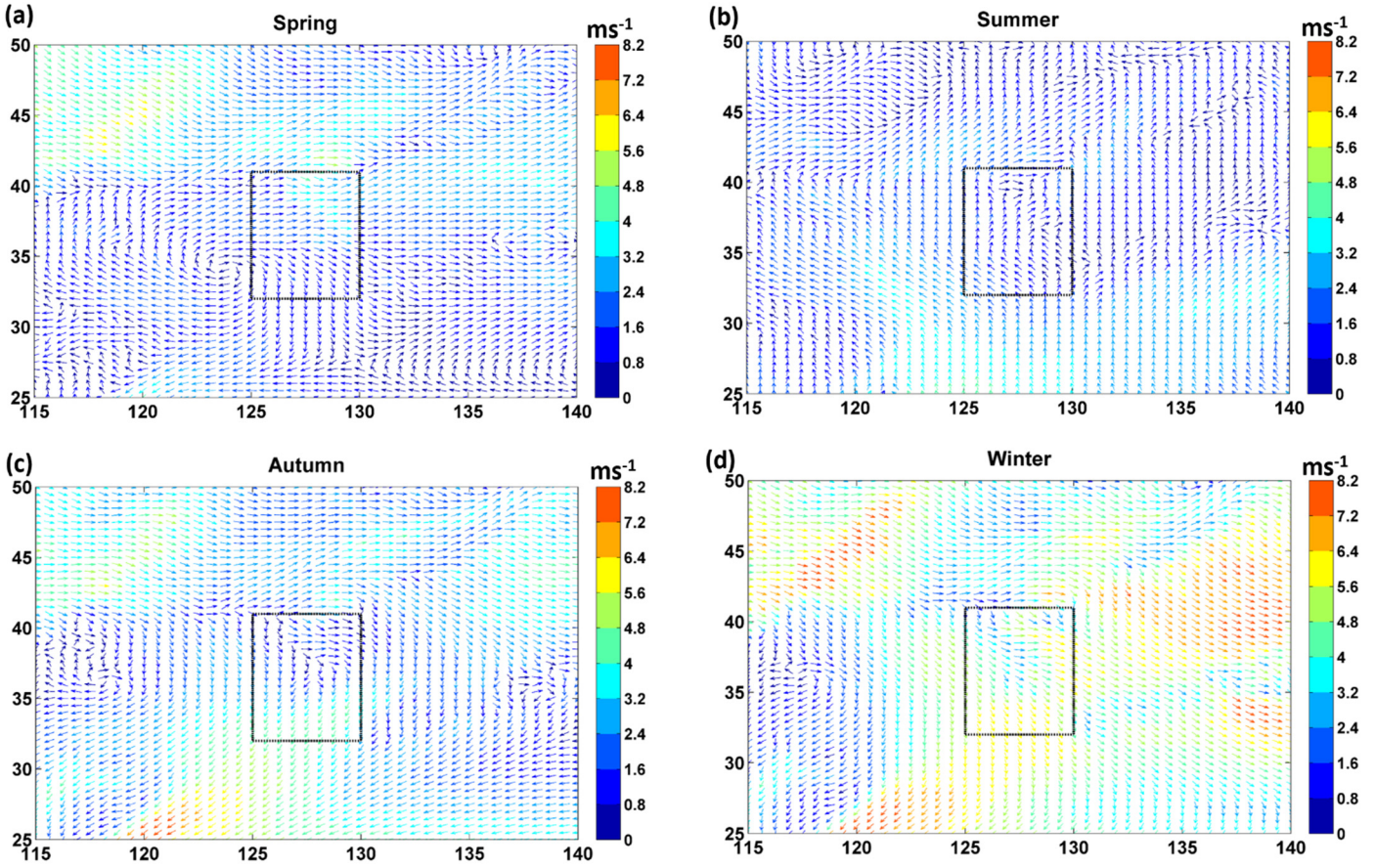


Figure S5. Trajectory frequencies (percentage of airmass transport) over the four sites from 1-15 January 2020.



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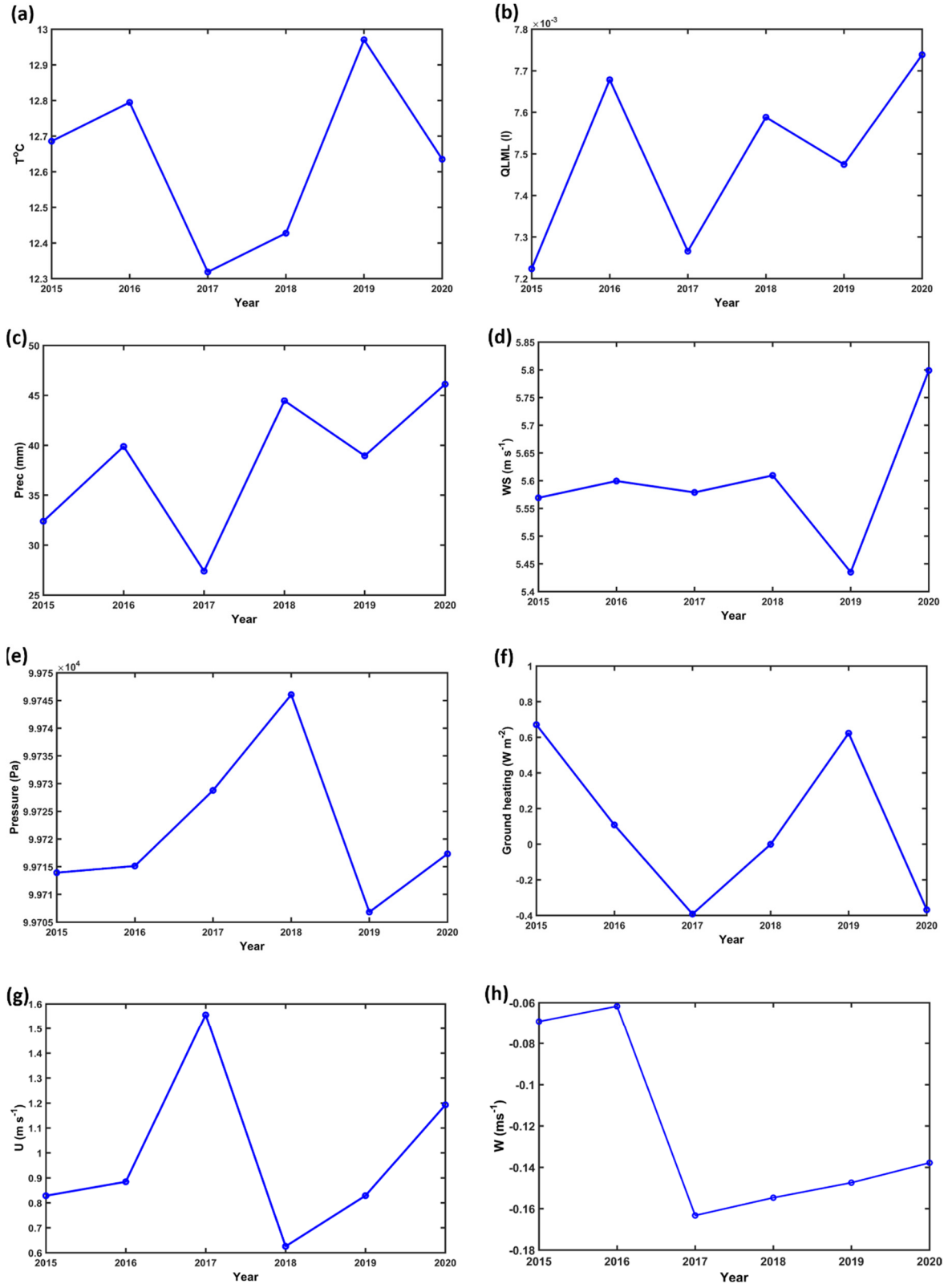

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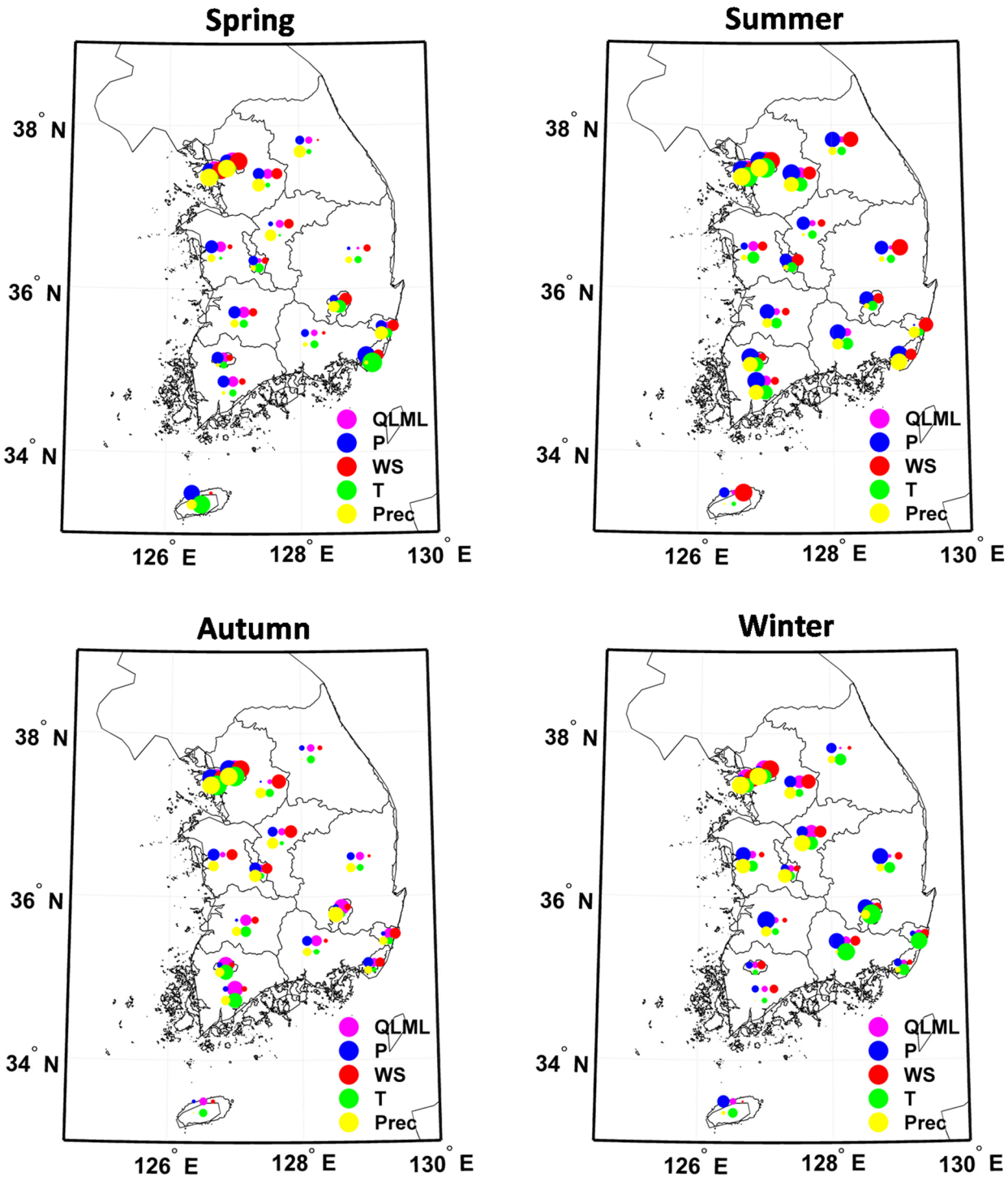

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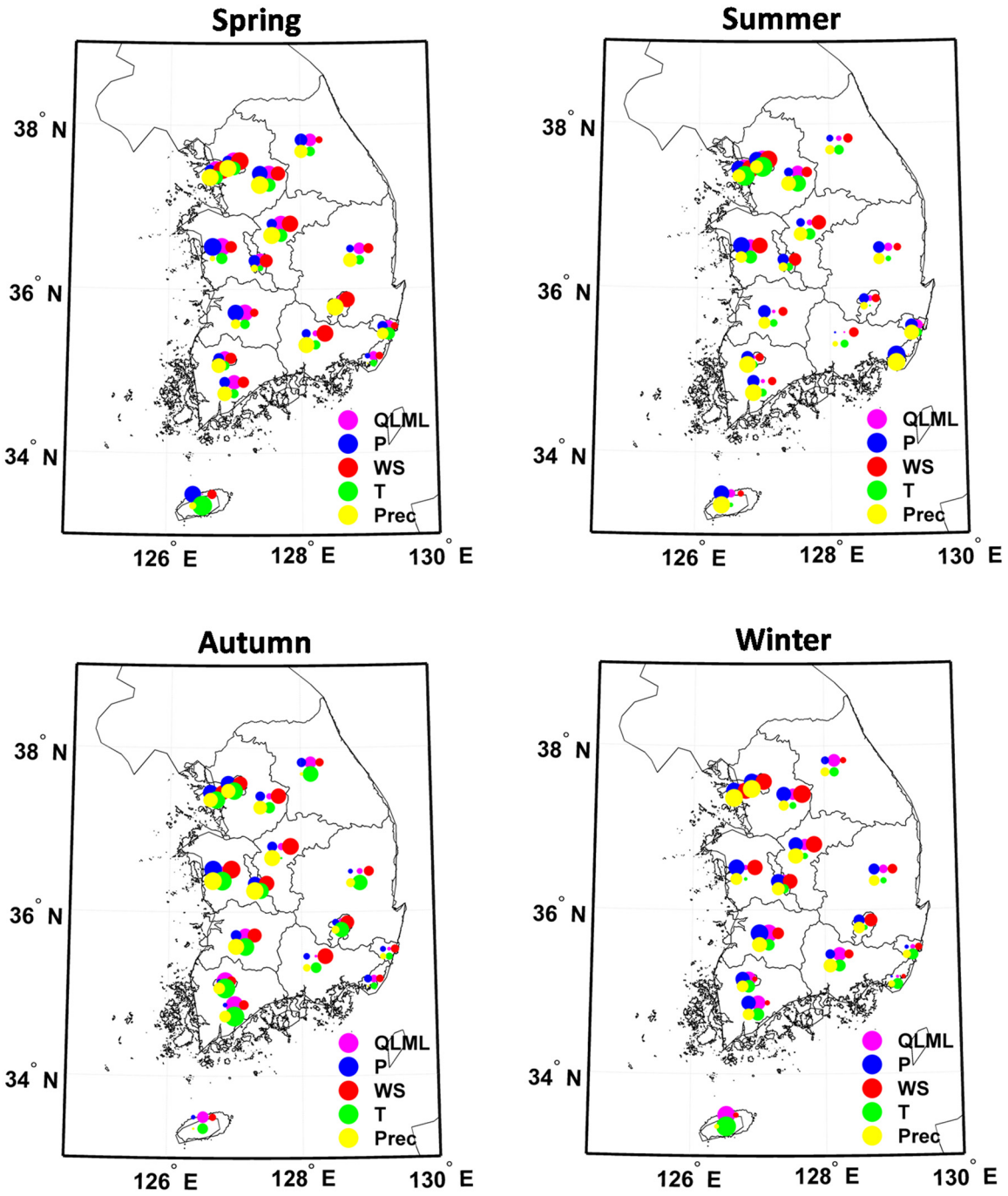

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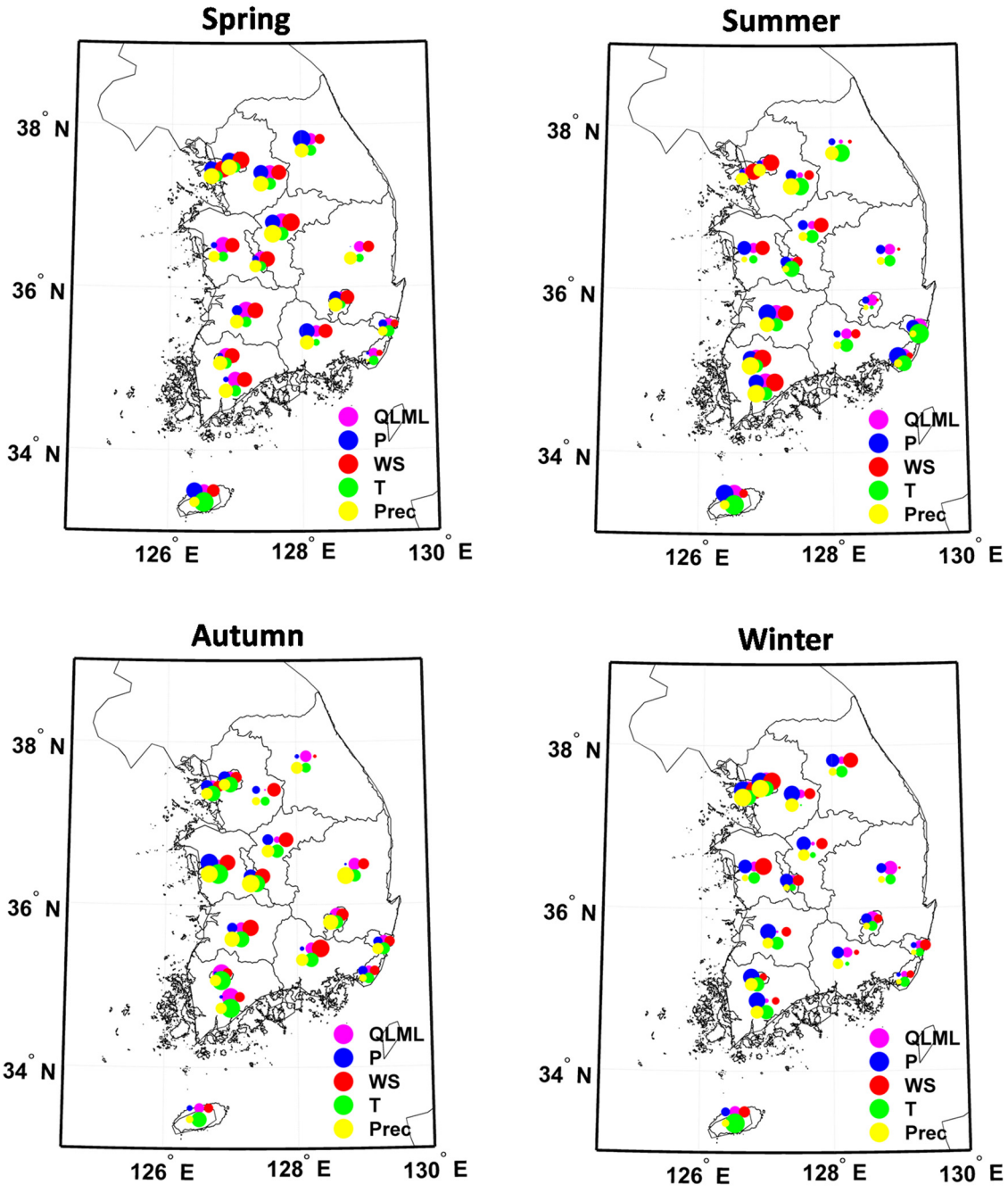

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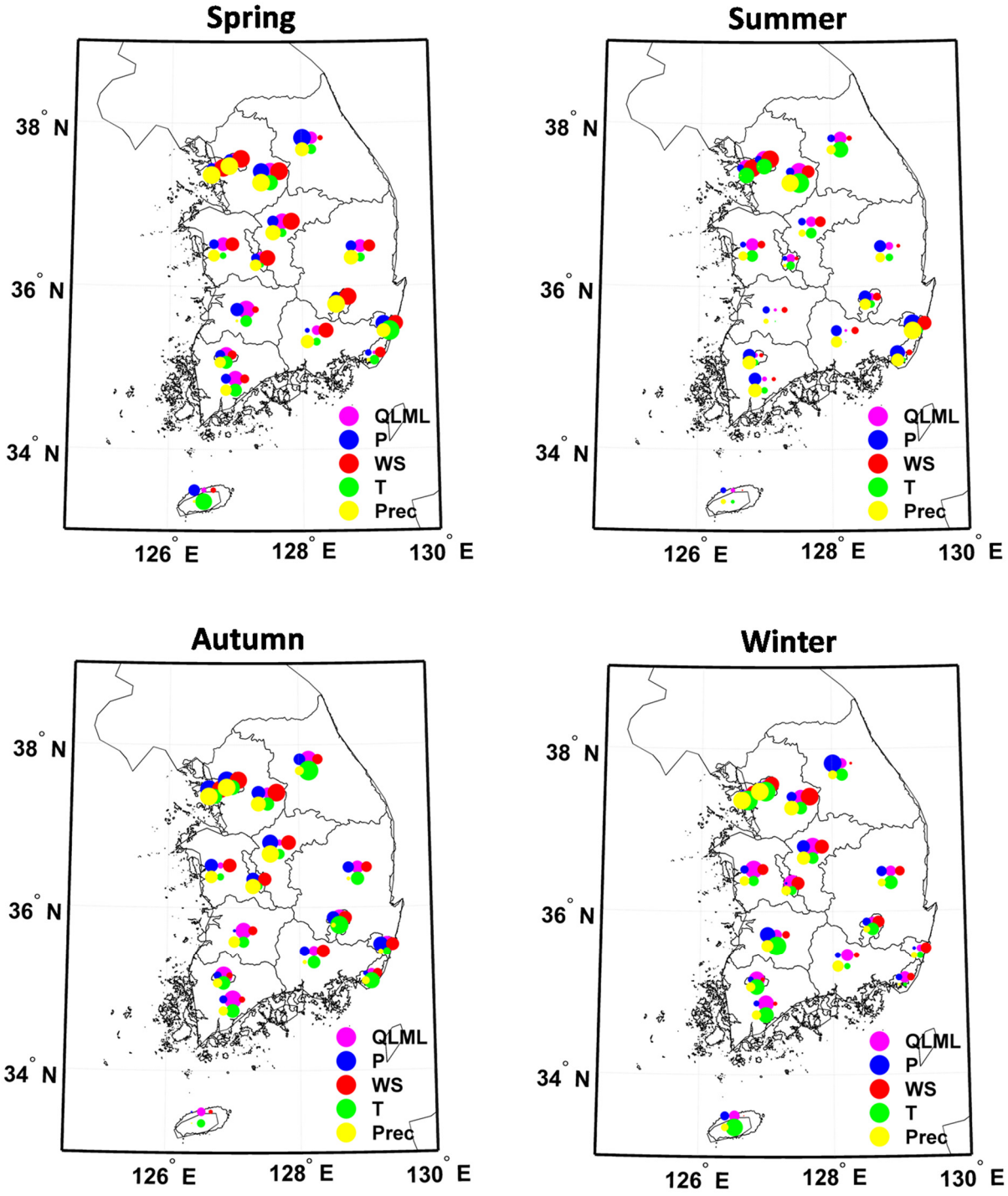

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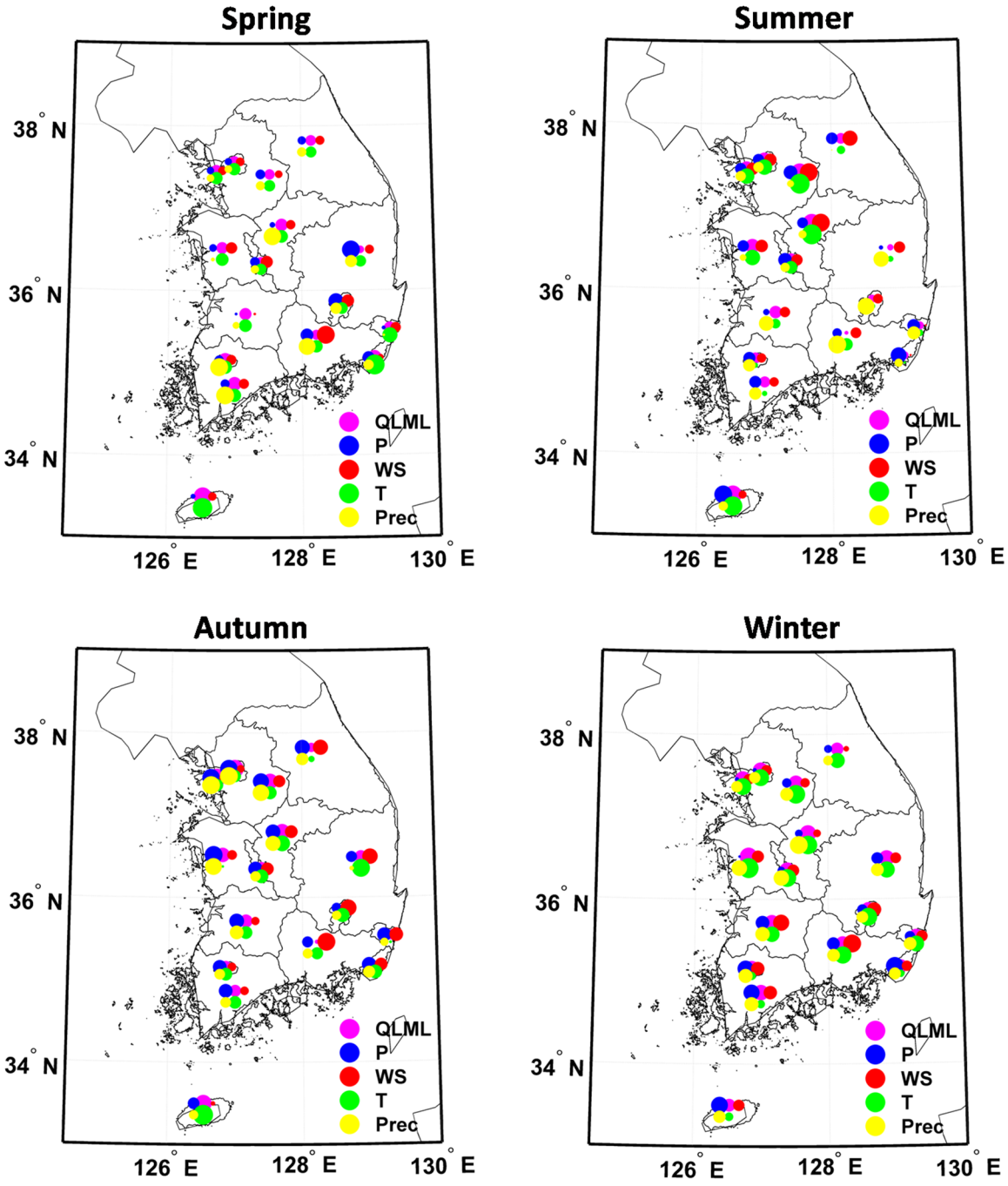

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