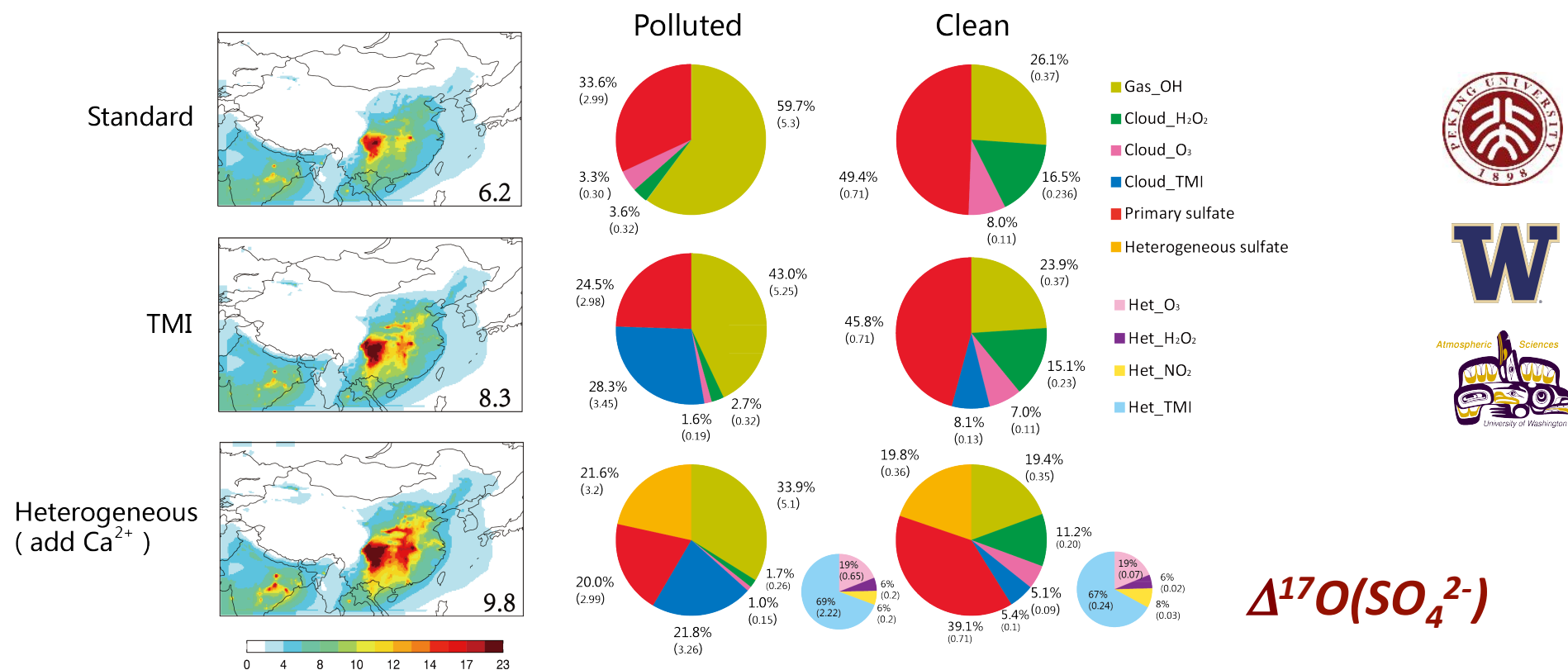


Heterogeneous chemistry: a mechanism missing in GEOS-Chem to explain sulfate formation in Beijing

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- ❖ Calculations with aerosol pH = 3-5 result in up to ~25% of sulfate abundance originating from heterogeneous chemistry, with metal-catalyzed oxidation dominating under polluted conditions.
- ❖ Observed sulfate concentrations and $\Delta^{17}\text{O}(\text{SO}_4^{2-})$ suggest aerosol pH between 4.5-5.5 on average, slightly higher than model calculations (pH = 3-5).

