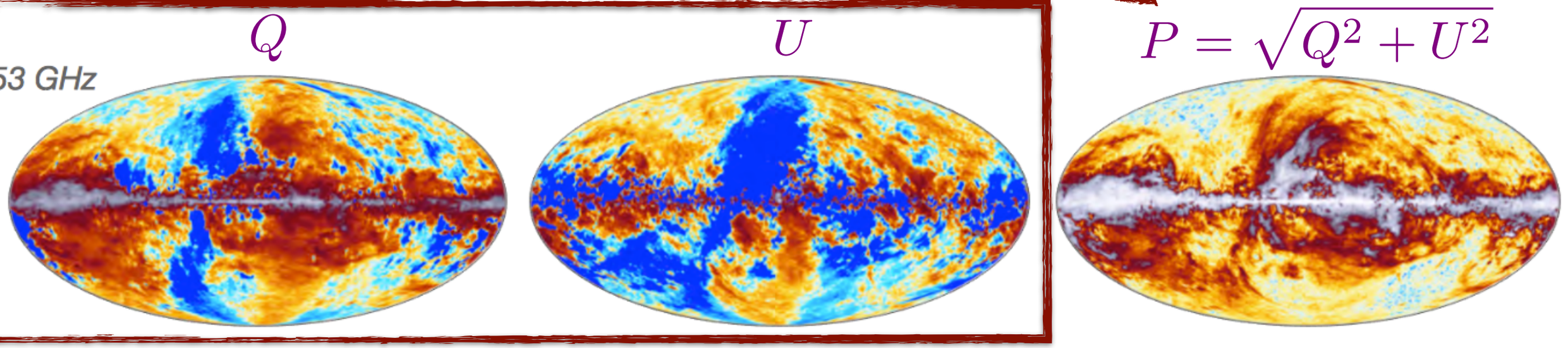
Polarization Measurement Analysis

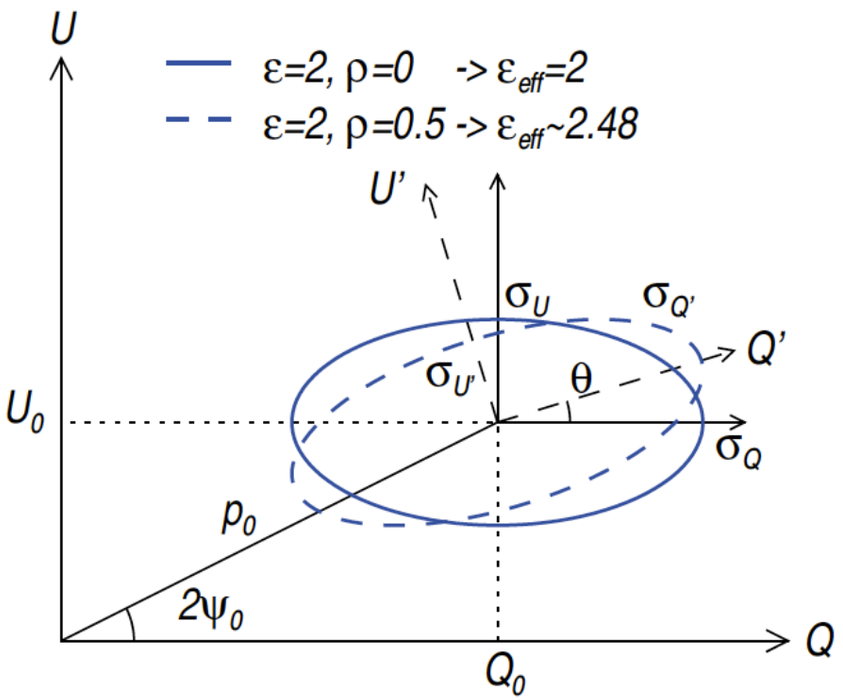
F. Levrier / L. Montier

The polarized microwave sky by Planck : Stokes parameters Q and U



- Astrophysicists use polarization fraction and angles, rather that Stokes parameters
- Noise on Stokes parameters implies statistical bias on these derived quantities
- Large-scale variations of the polarization signal-to-noise ratio in Planck data over the sky
- Monte-Carlo exploration of the noise properties on the bias and variance of p and ψ

Probability distribution function in Q and U



Probability distribution function in p and ψ

Polarization fraction $p = \frac{P}{I}$ **and angle** $\psi = \frac{1}{2}\mathrm{atan}(U, Q)$