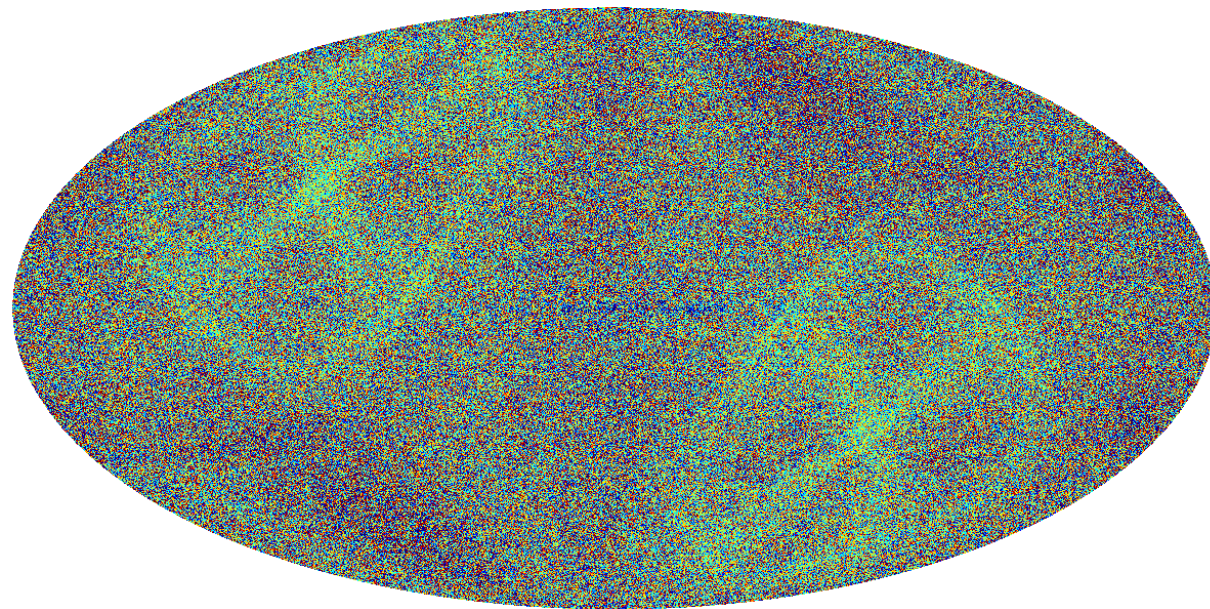


K.M. Gorski

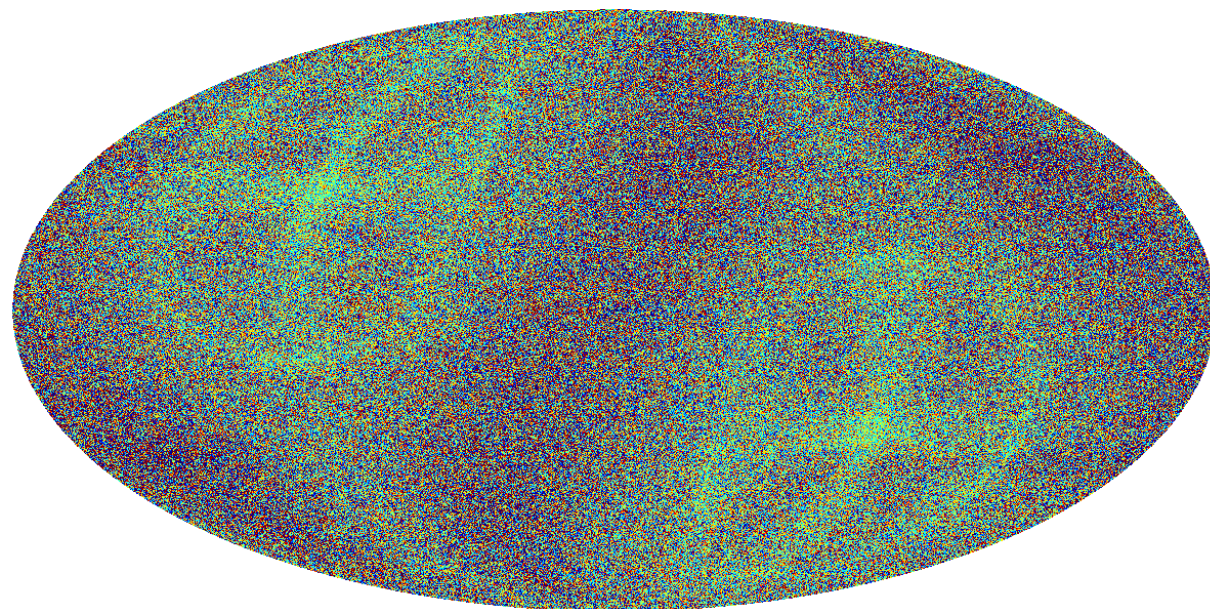
Scanning considerations for PROBE

WMAP V-band Q



-0.10 0.10 mK,thermodynamic

WMAP V-band U



-0.10 0.10 mK,thermodynamic

WMAP9 Q/U maps in V-band

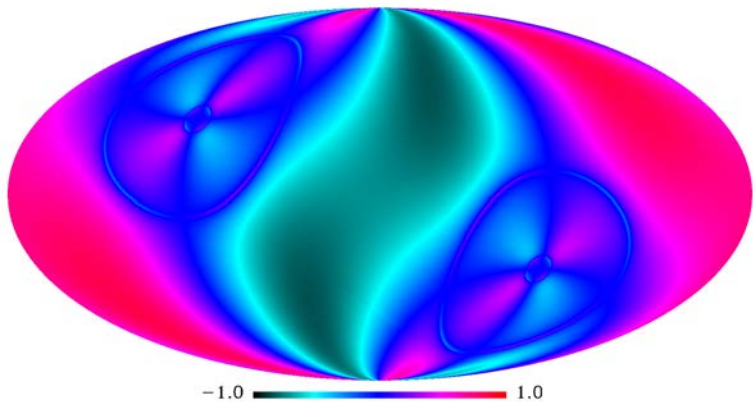
Galactic coordinates

Foreground reduced

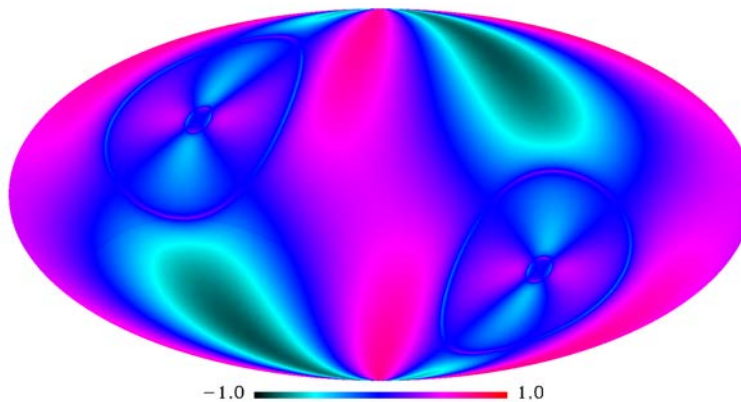
Noise dominated

Structures seen around
ecliptic poles are imprinted
by scanning strategy,
specifically, mostly by the
values of α and β ;
 α – bore angle (center of the
focal plane w.r.t. spin axis
 β – opening angle of the
precession cone

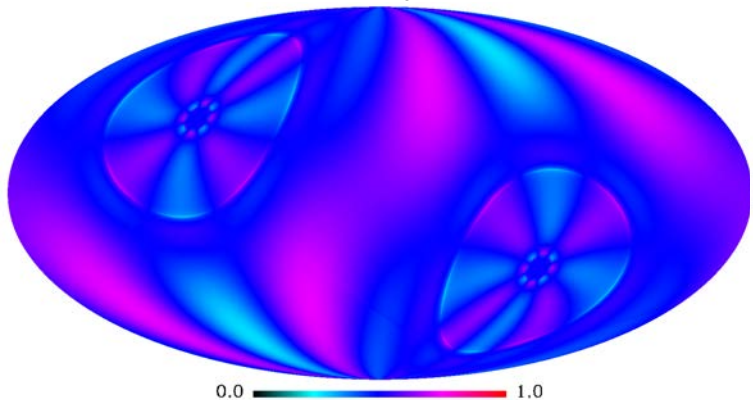
$\langle \cos 2\psi \rangle$



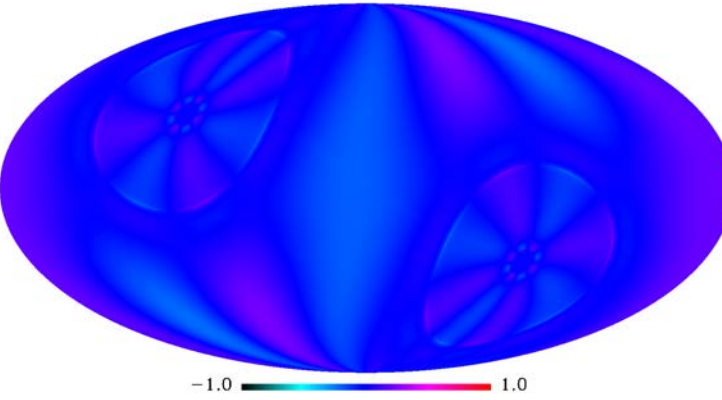
$\langle \sin 2\psi \rangle$



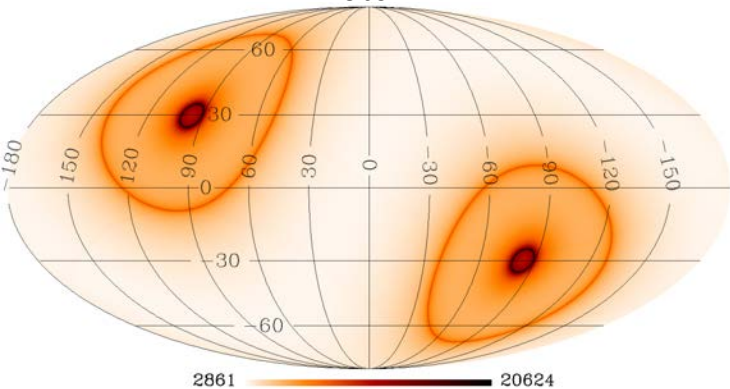
$\langle \cos^2 \psi \rangle$



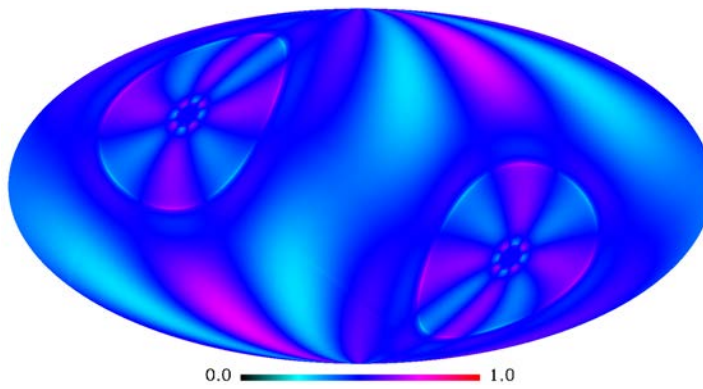
$\langle \cos \psi * \sin \psi \rangle$



N_{obs}



$\langle \sin^2 \psi \rangle$



Example 1:

fast spin
&
fast precession

$\alpha = 73 \text{ deg}$

$\beta = 22 \text{ deg}$

$T_{\text{spin}} = 20 \text{ sec}$

$T_{\text{precession}} = 40 \text{ min}$

1 year scan

Reduced resolution:
10 arcmin sampling
on the sky

Example 2:

fast spin
&
**slower
precession**

$\alpha = 73$ deg
 $\beta = 22$ deg

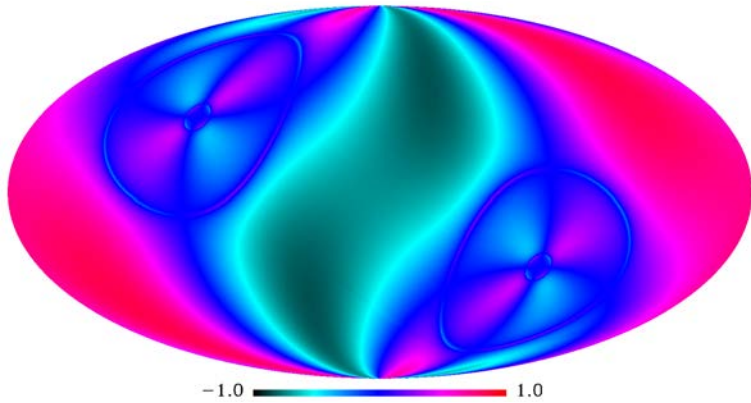
$T_{\text{spin}} = 20$ sec

$T_{\text{precession}} = 12$ hrs

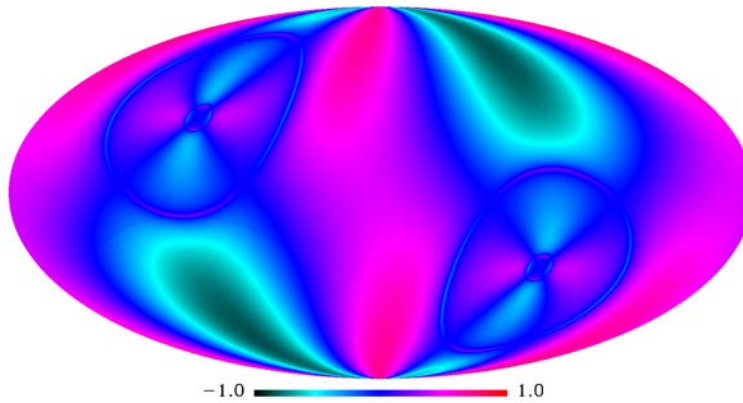
1 year scan

Reduced resolution:
10 arcmin sampling
on the sky

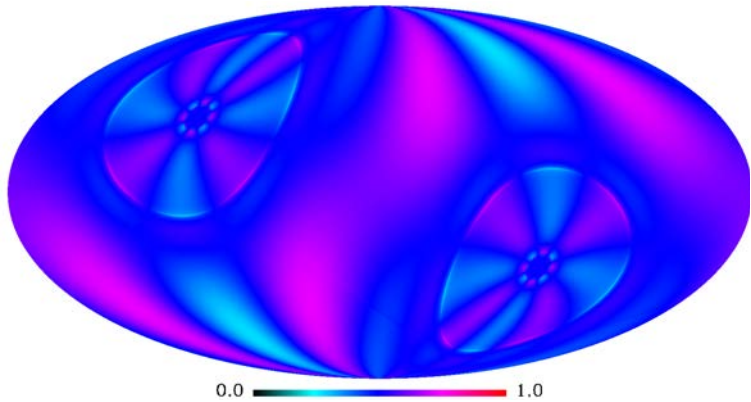
$\langle \cos 2\psi \rangle$



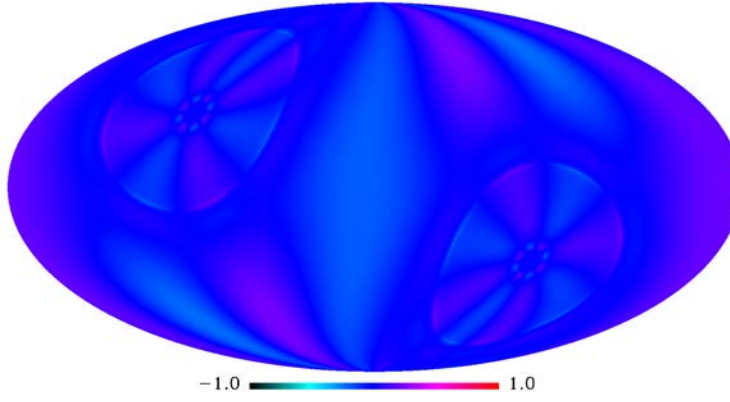
$\langle \sin 2\psi \rangle$



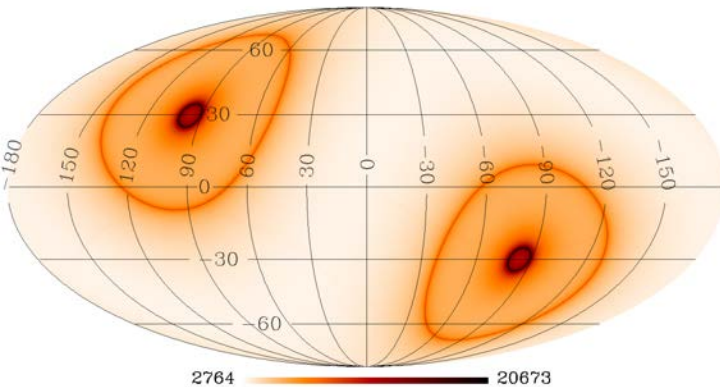
$\langle \cos^2 \psi \rangle$



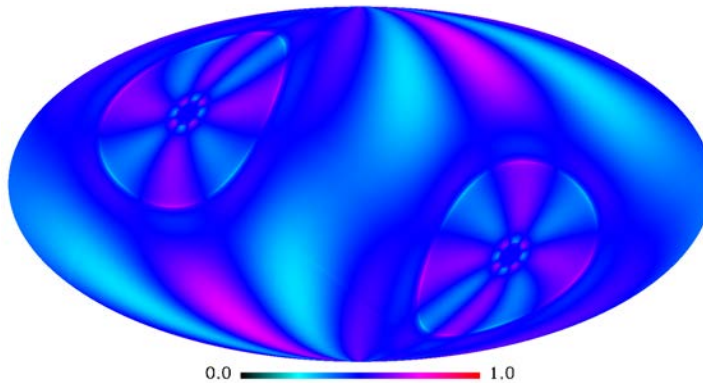
$\langle \cos \psi * \sin \psi \rangle$



N_{obs}



$\langle \sin^2 \psi \rangle$



Example 3:

fast spin
&
very slow
precession

$\alpha = 73$ deg
 $\beta = 22$ deg

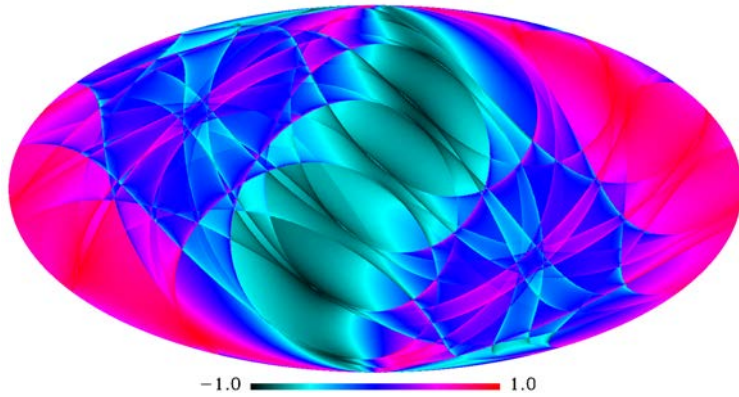
$T_{\text{spin}} = 20$ sec

$T_{\text{precession}} = 1$ month

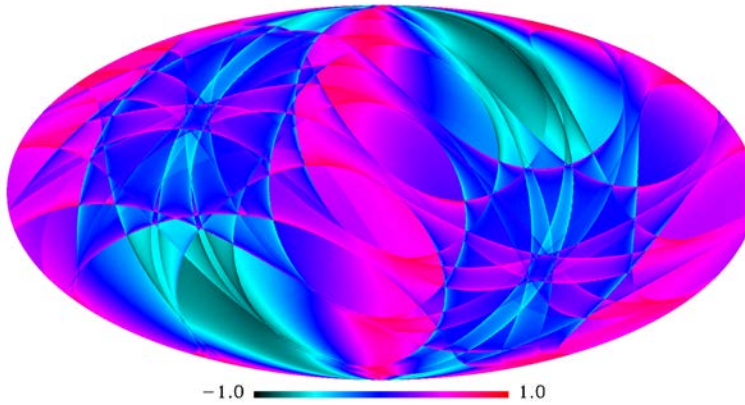
1 year scan

Reduced resolution:
10 arcmin sampling
on the sky

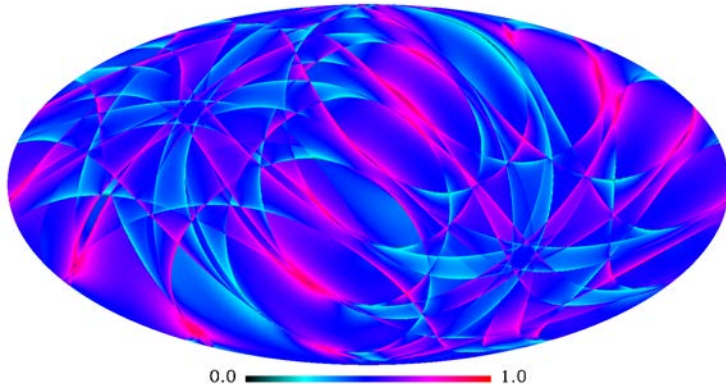
$\langle \cos 2\psi \rangle$



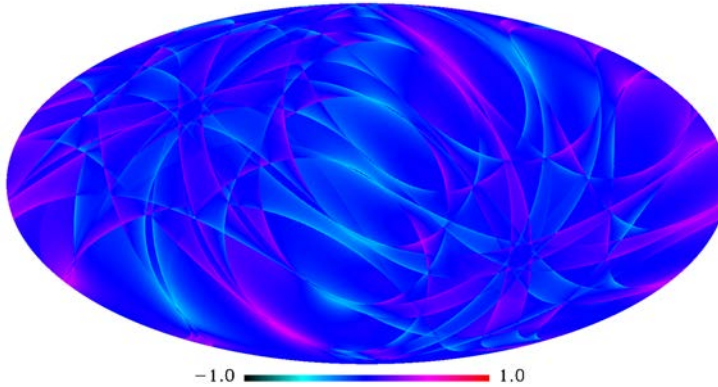
$\langle \sin 2\psi \rangle$



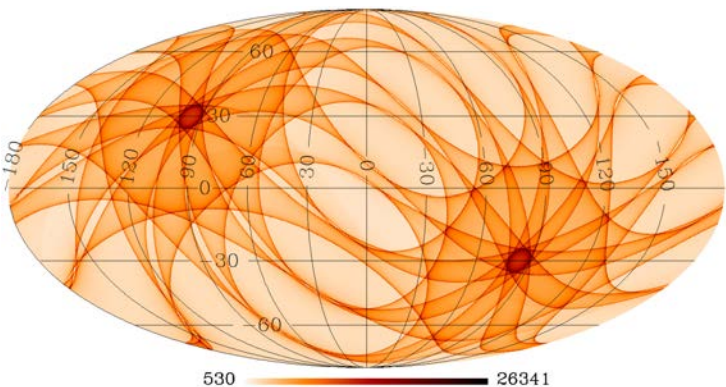
$\langle \cos^2 \psi \rangle$



$\langle \cos \psi * \sin \psi \rangle$



N_{obs}



$\langle \sin^2 \psi \rangle$

