

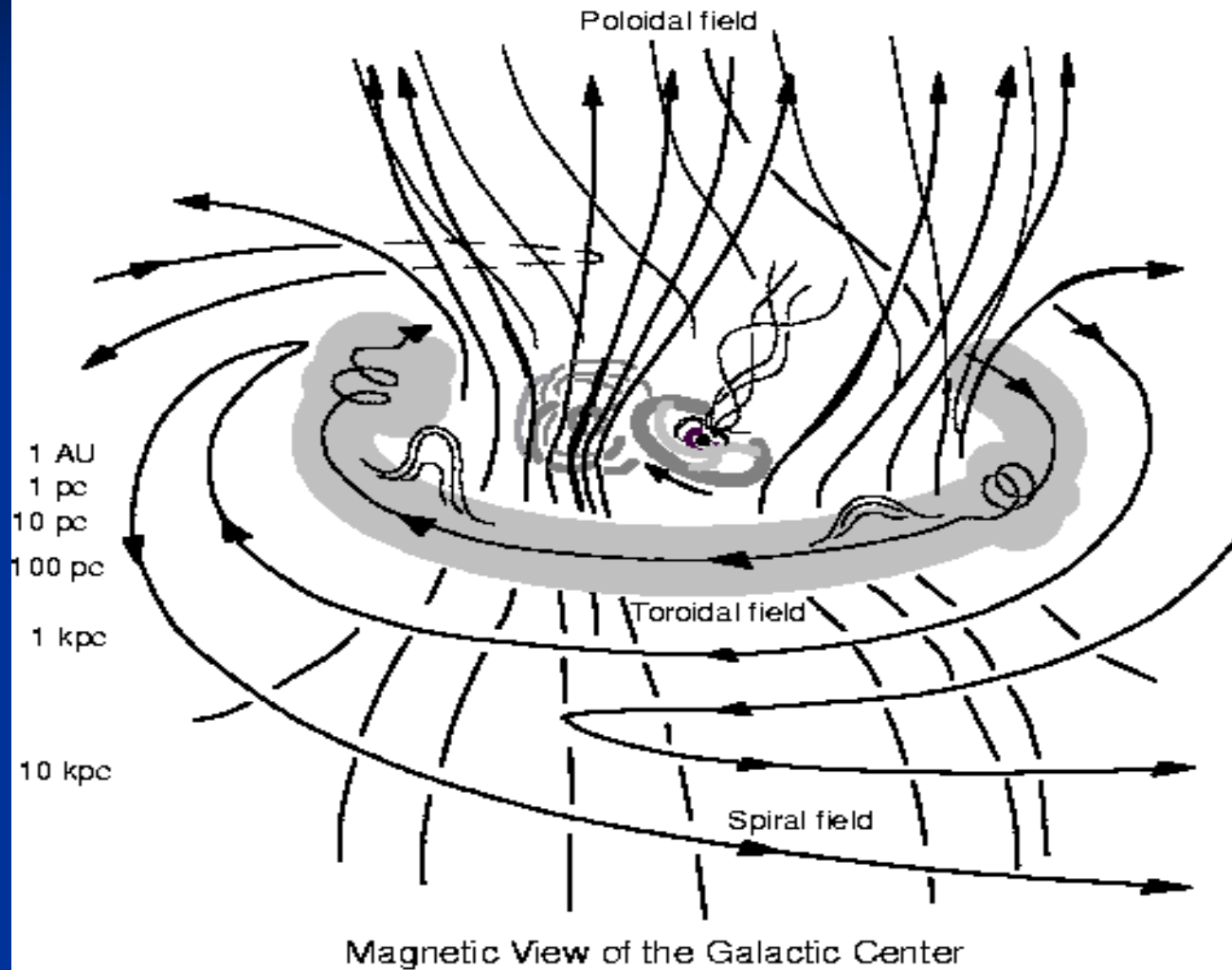
銀河磁場

祖父江義明

2010.3.16

SKA-Magne WG @TV

Magnetic View of the Galaxy



1. 銀河系

RM vs Gas

1. Gas + Model B = RM sky
2. “Frozen-in or not” Problem
3. Local B reversal (Random / Turbulent)

RM and Bisymmetric B (Sofue, Fujimoto 1983)

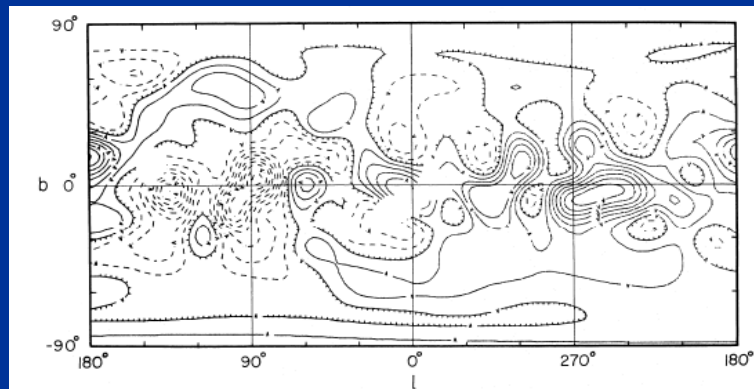
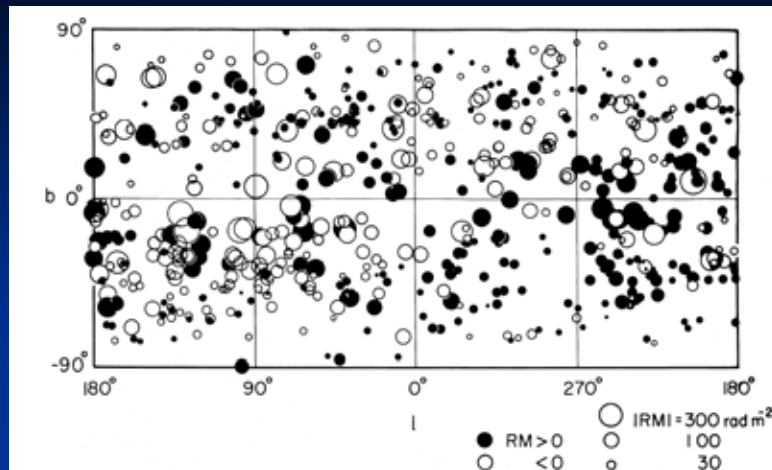
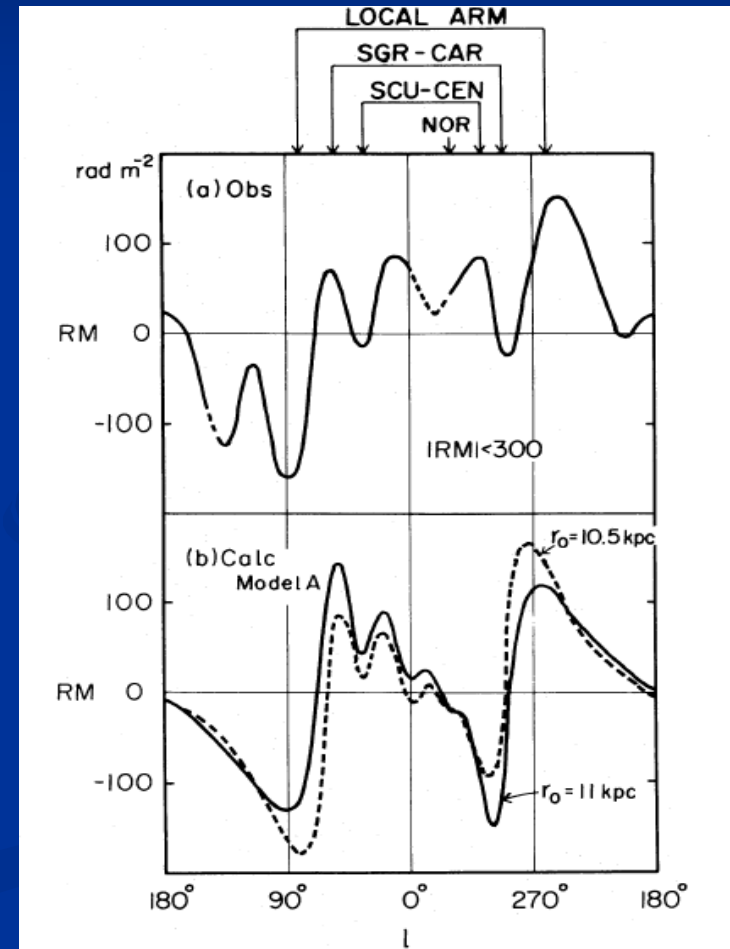
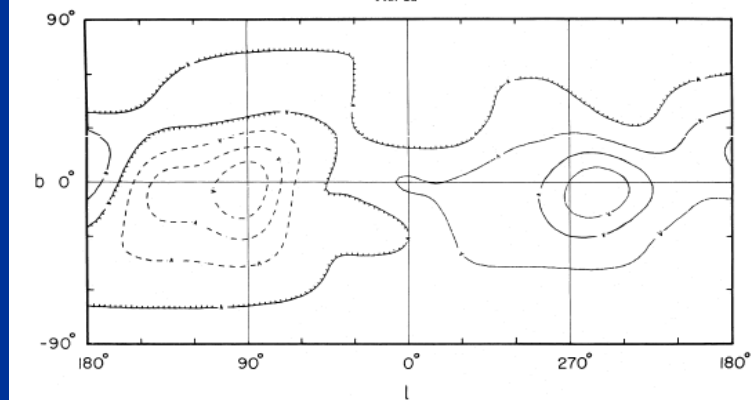
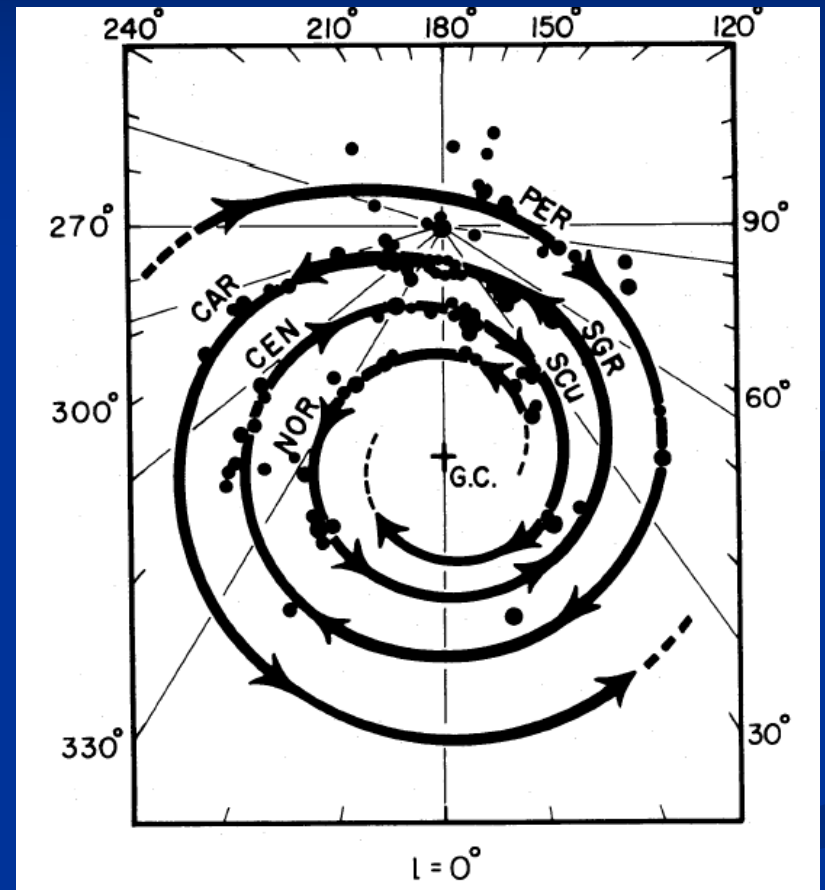
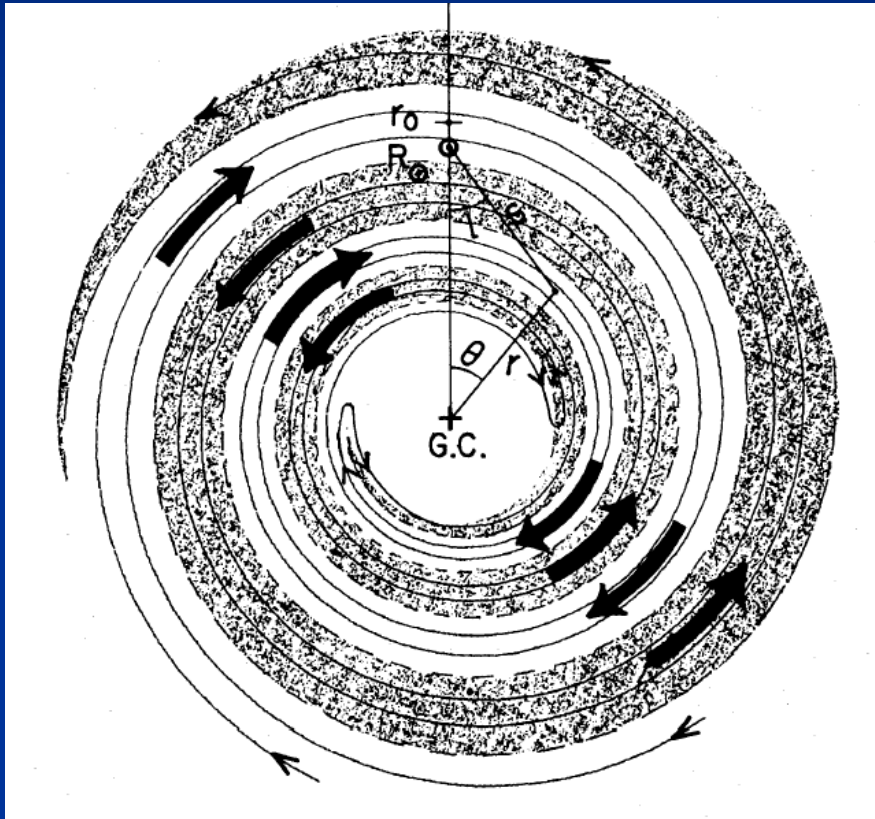


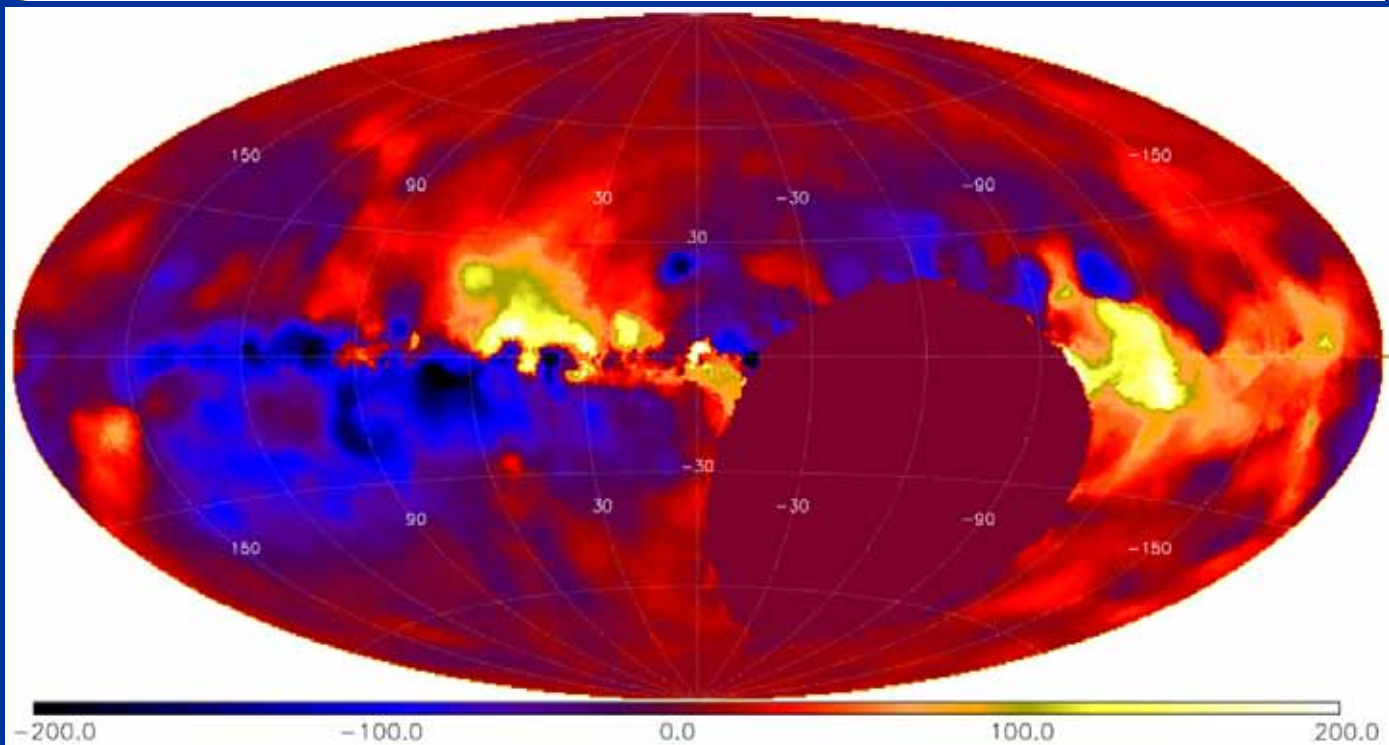
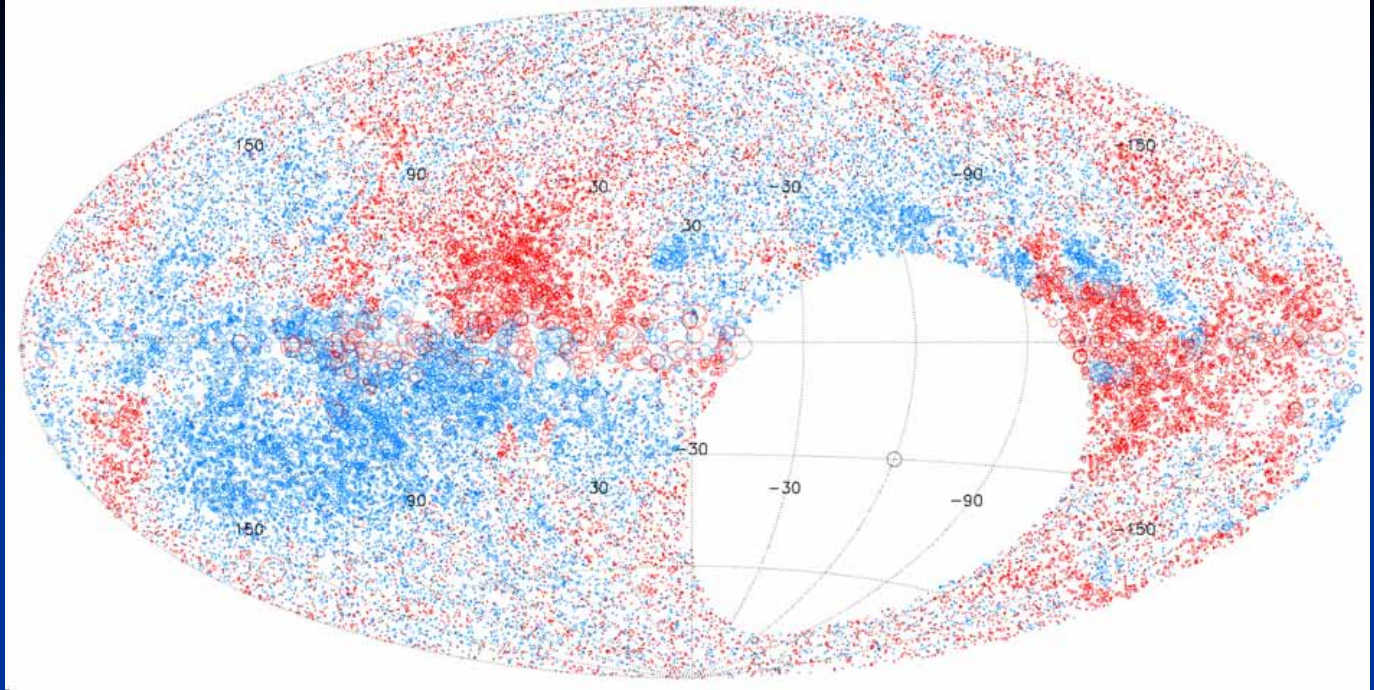
FIG. 2a



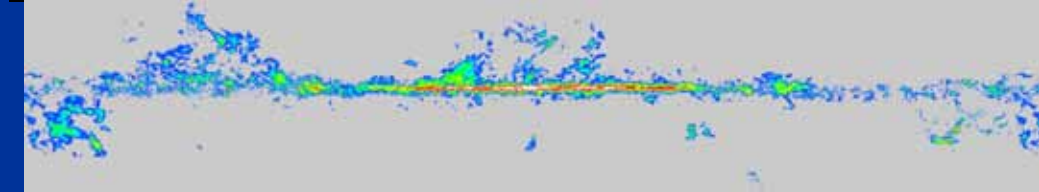
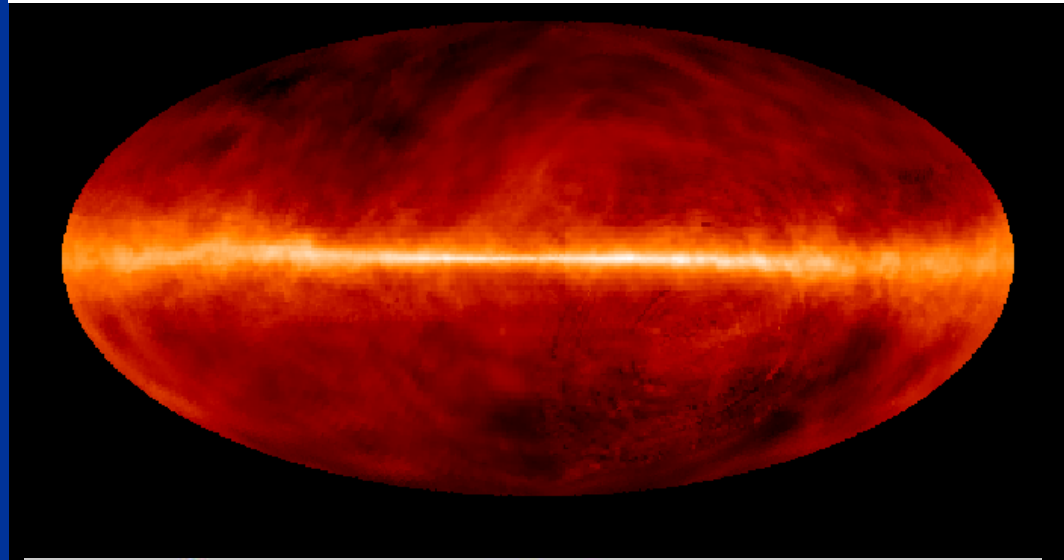
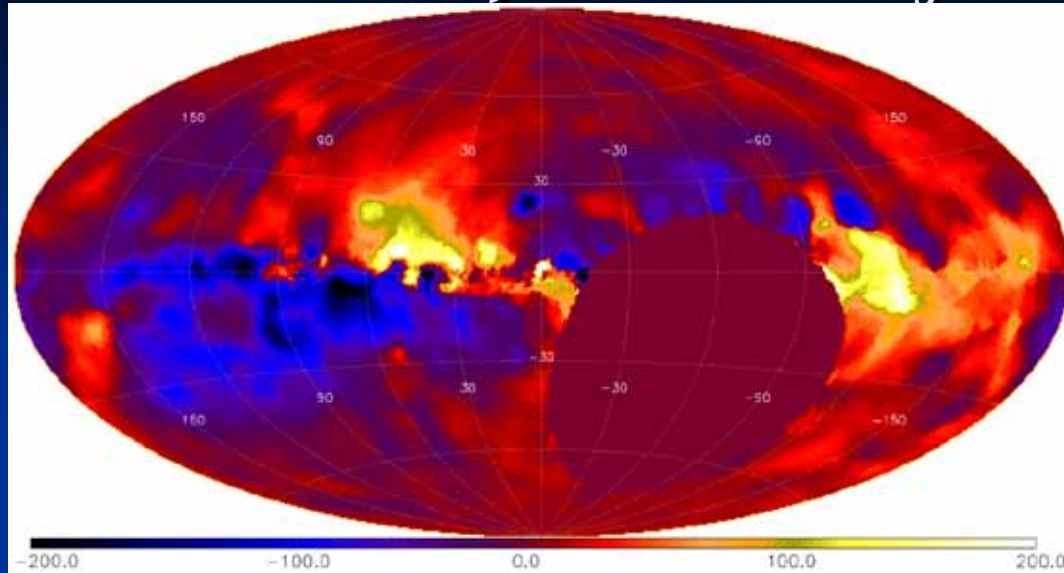
Bisymmetric B (Sofue, Fujimoto 1983)



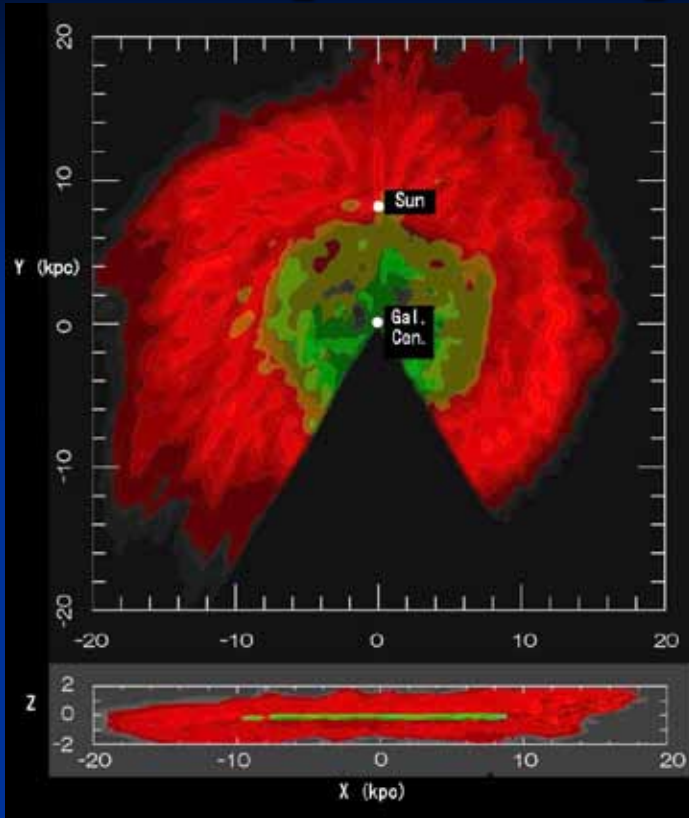
RM Sky (Taylor 2009)



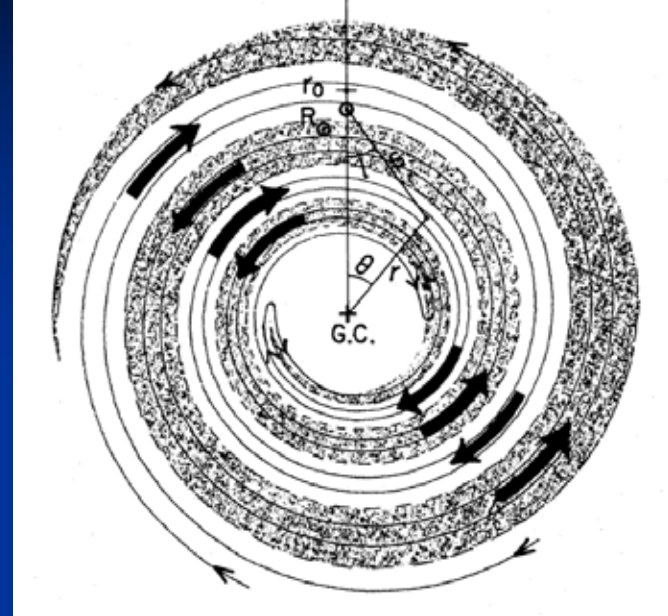
RM vs HI, CO all sky



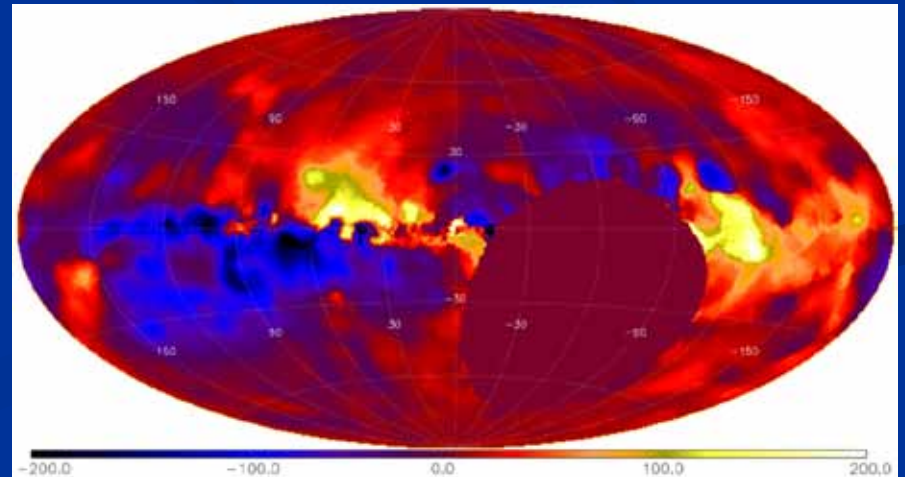
3D [HI+CO] x [B Model] = RM sky



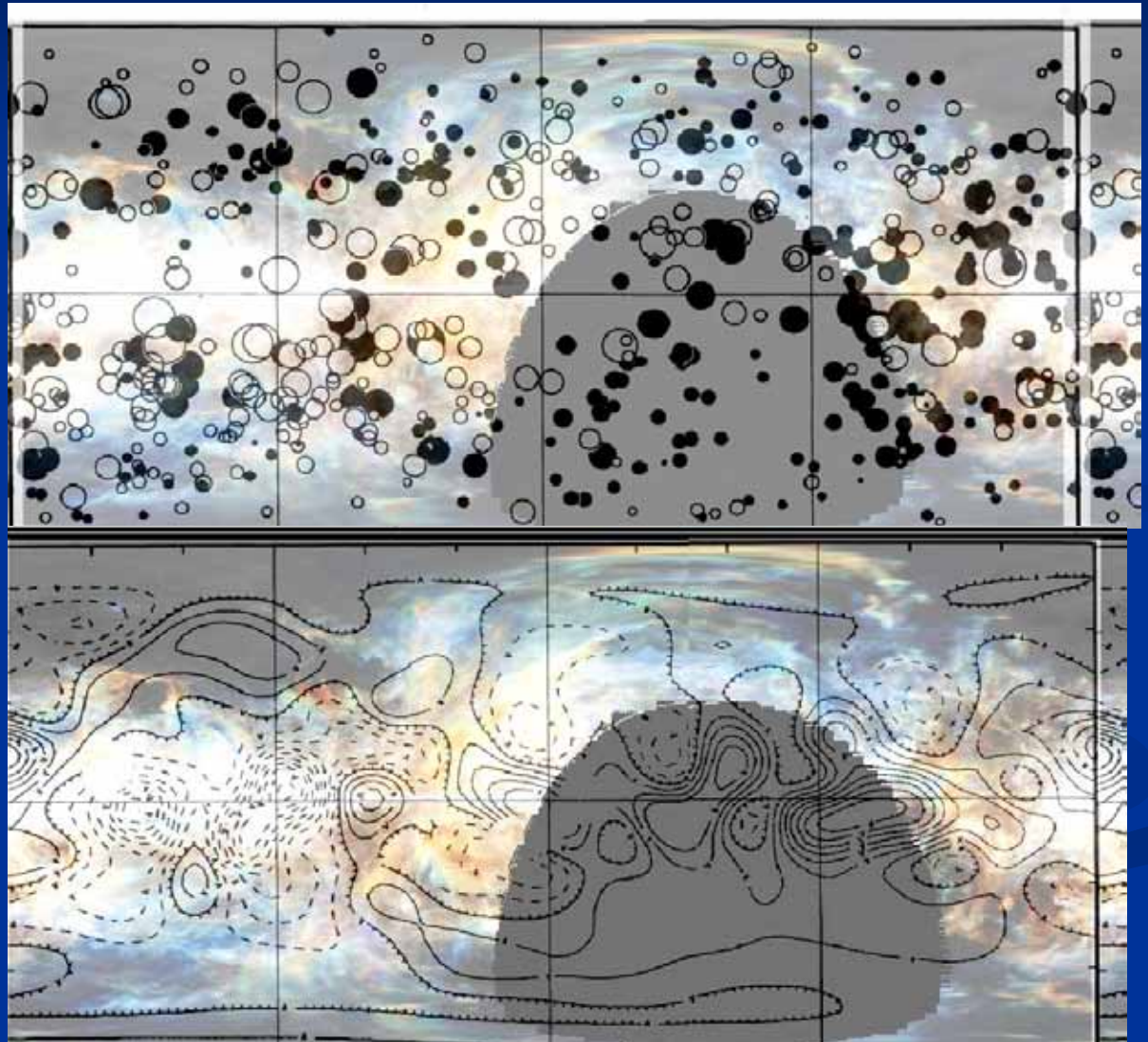
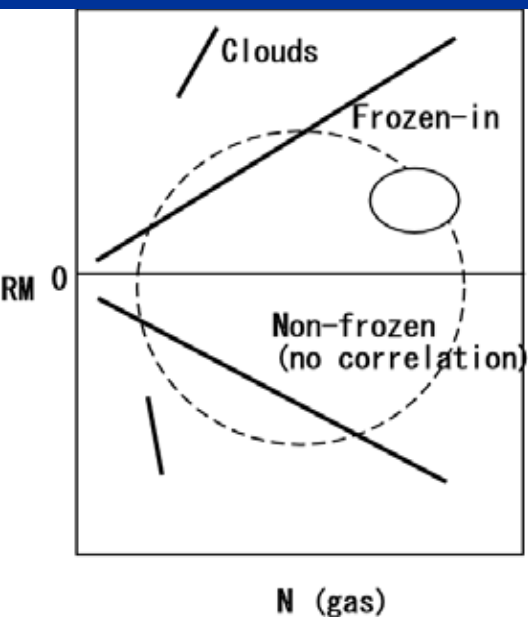
X



=



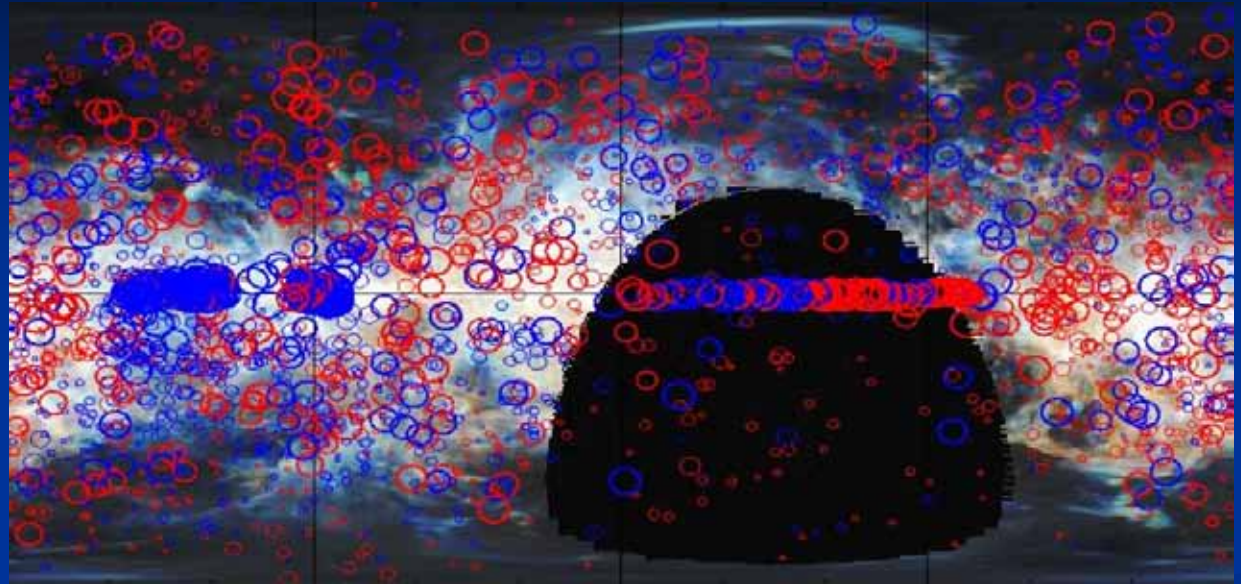
RM / HI, H2, HII, Dust



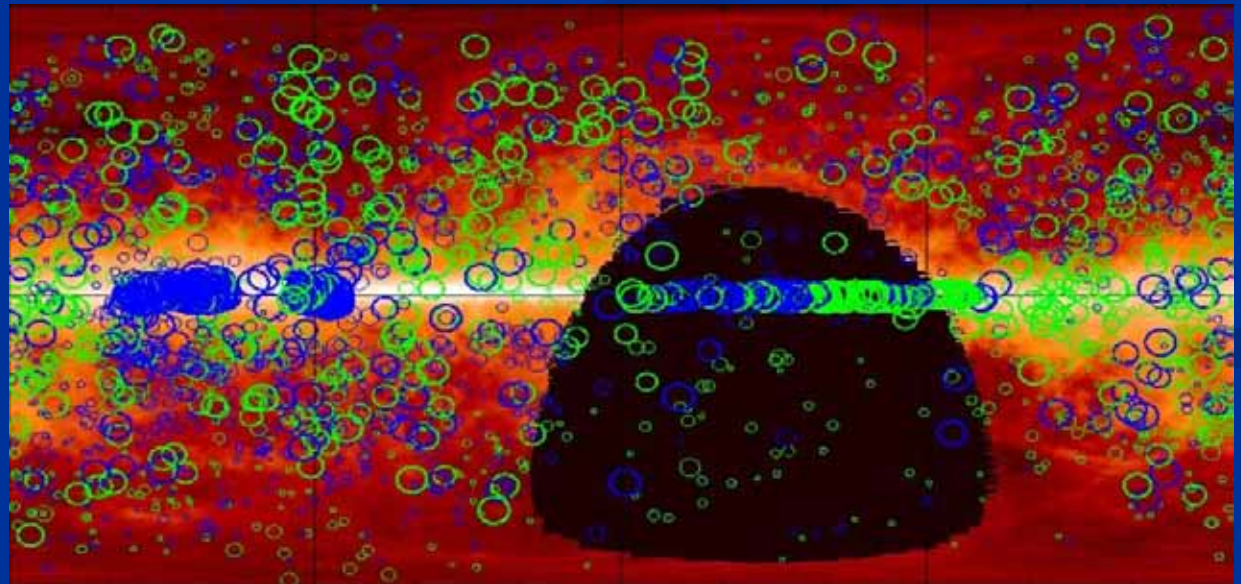
RM vs HI, H2, HII, Dust

RM on

HI(local)



HI(total)



RM vs H α (HII)

Wielebinski et al.

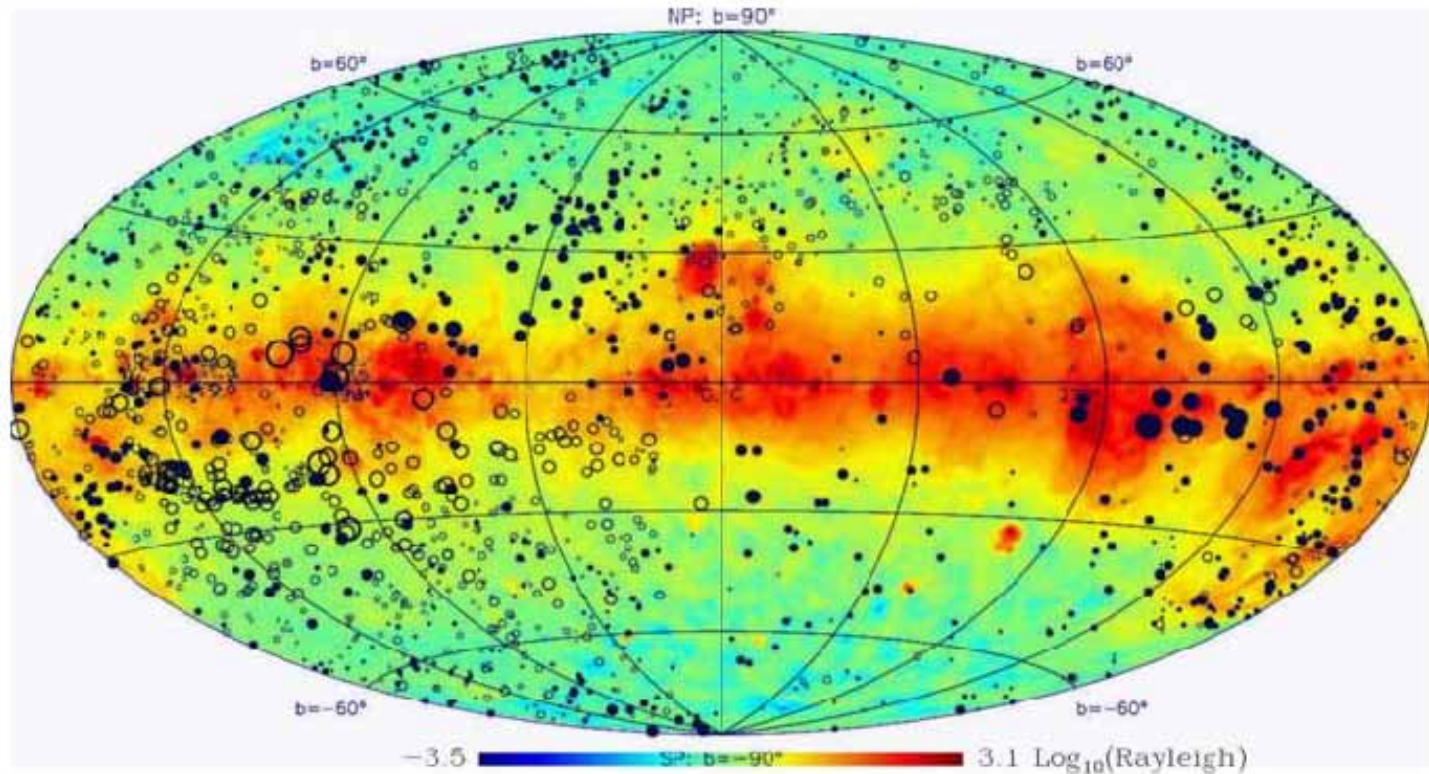
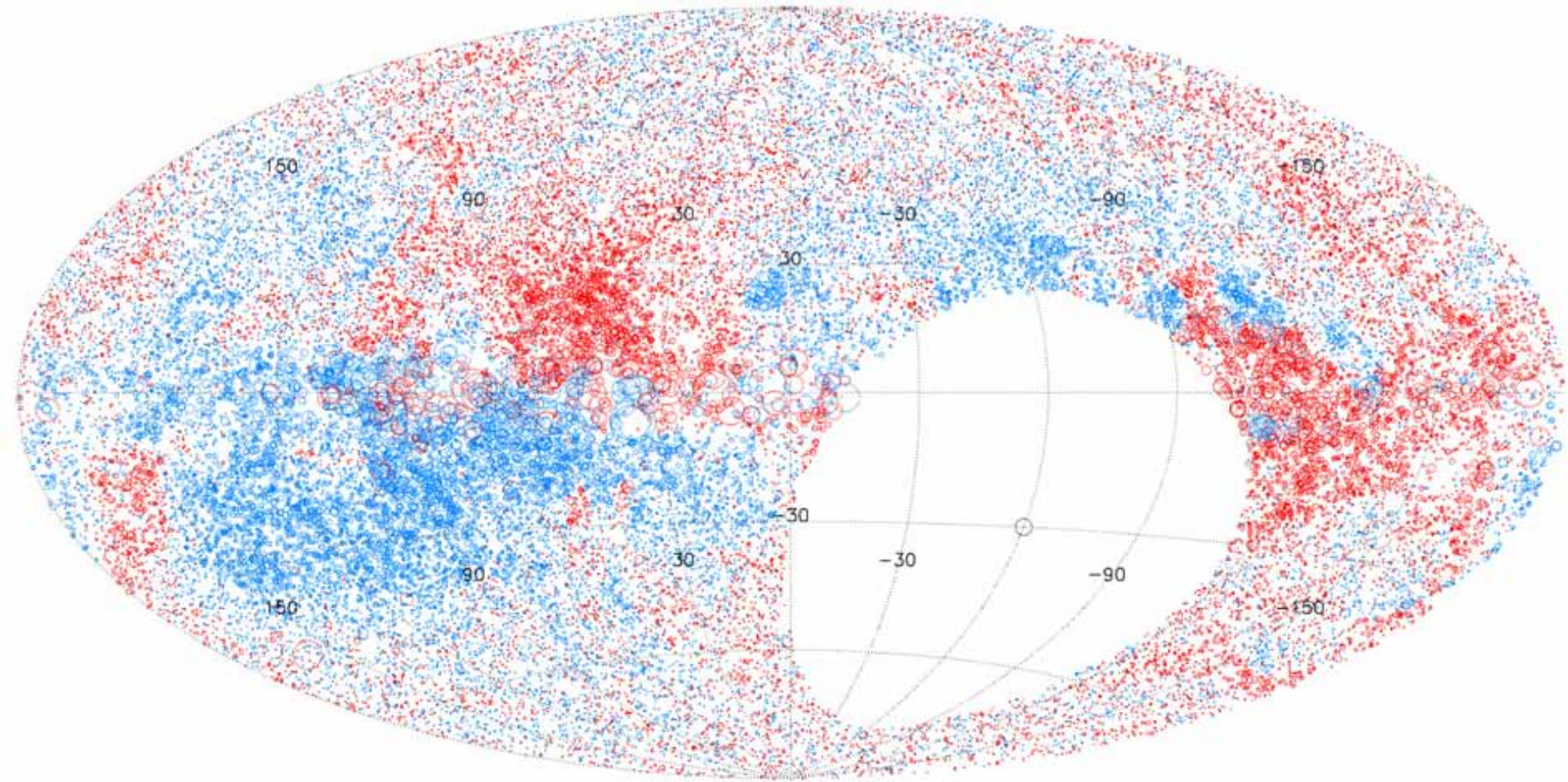
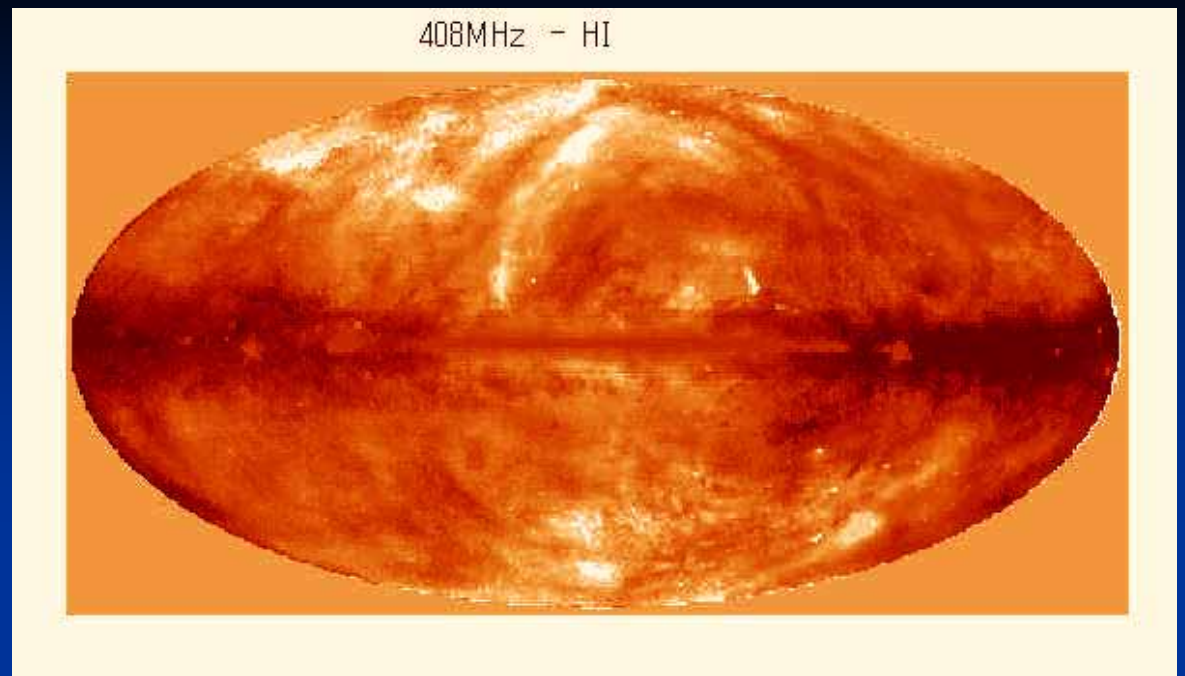


Figure 3. All-sky RM map of about 2400 EGRS (Han et al., in preparation) overlaid on an all-sky H α image, a combination of the WHAM and SHASSA surveys (Finkbeiner 2003).

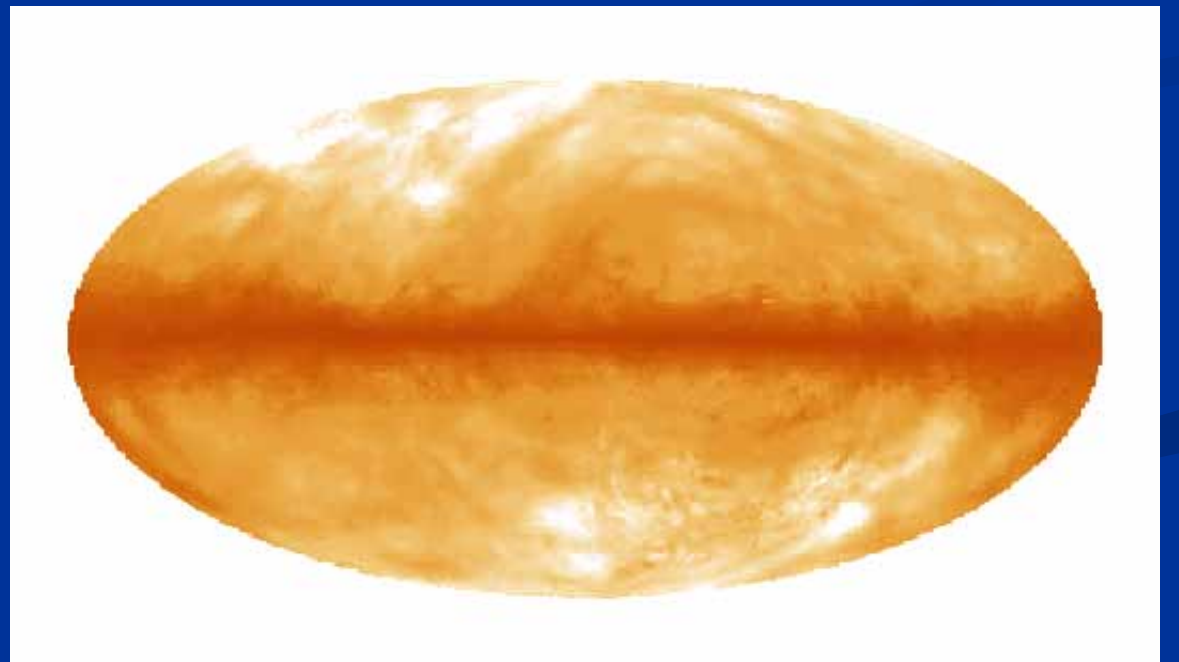
RM (Taylor 2009)



Radio / HI



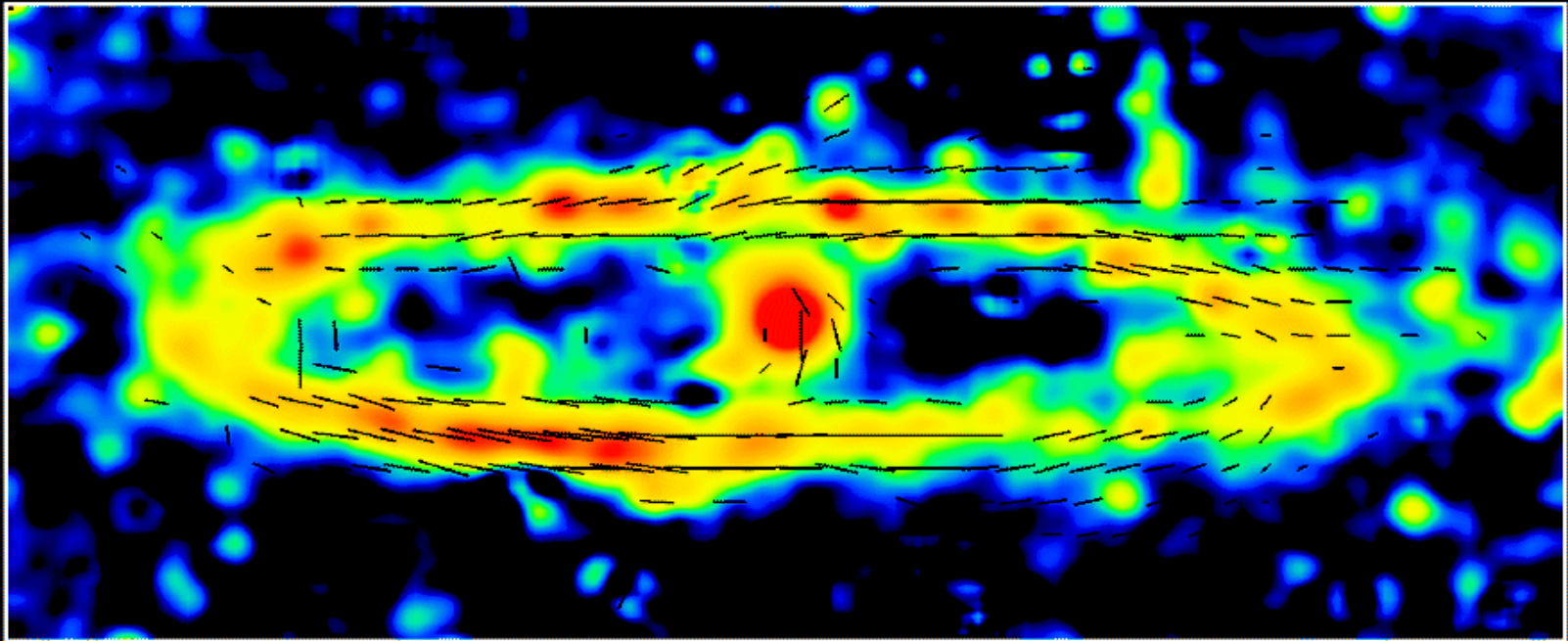
HI / Dust



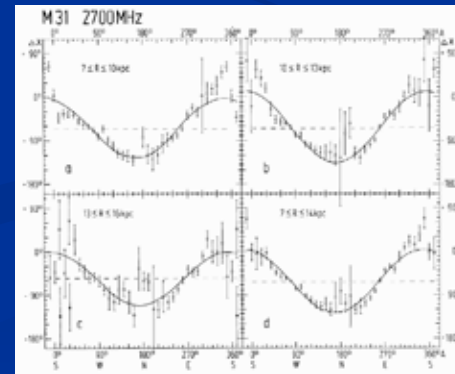
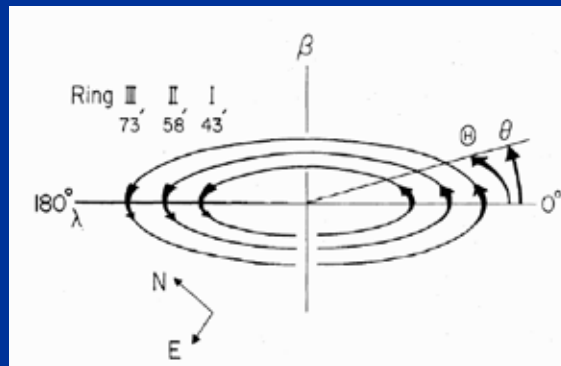
2. 銀河中心 垂直磁場

Ring + GC Vertical (M31, Berkhuijsen et al.)

M31 6cm Total Intensity + Magnetic Field (Effelsberg)

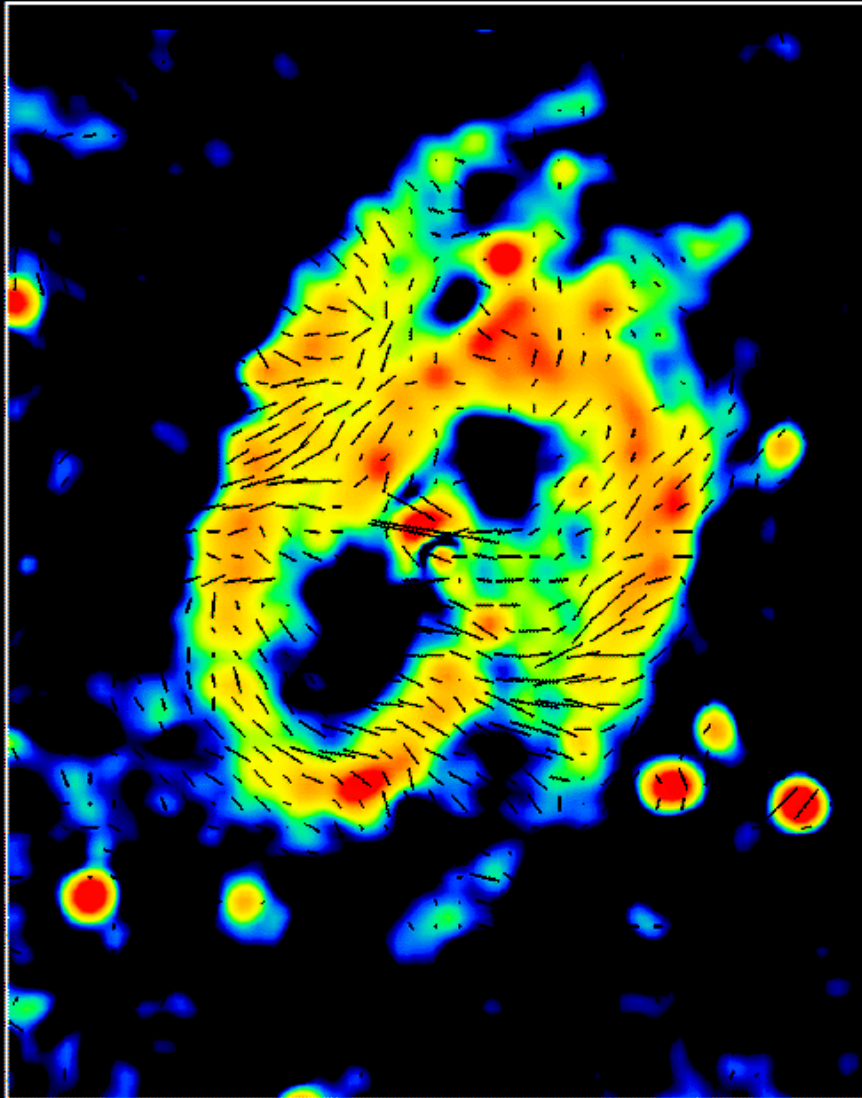


Copyright: MPIfR Bonn (R.Beck, E.M.Berkhuijsen & P.Hoernes)

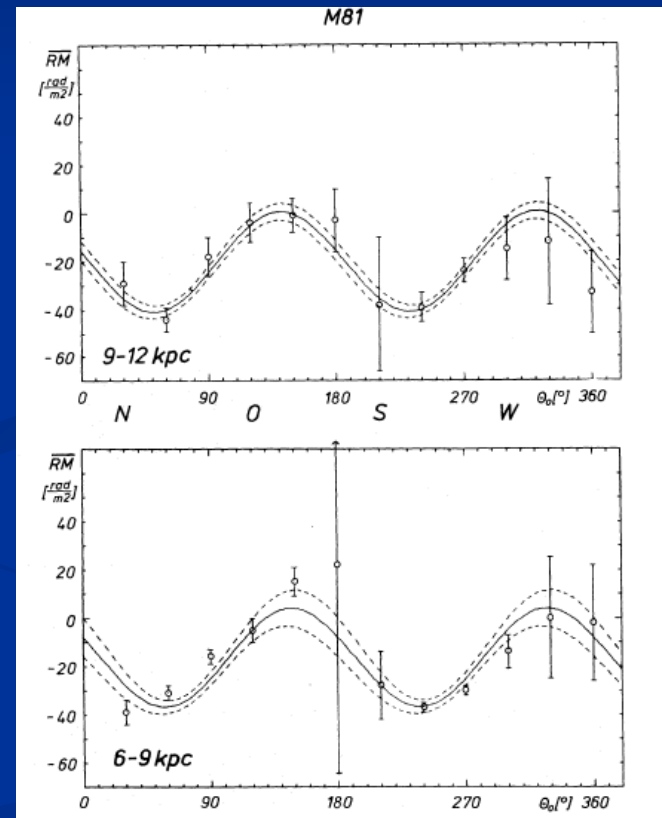


BSS + GC Vertical M81 Krause et al. 1989

M81 20cm Total Int. + B-Vectors (VLA)

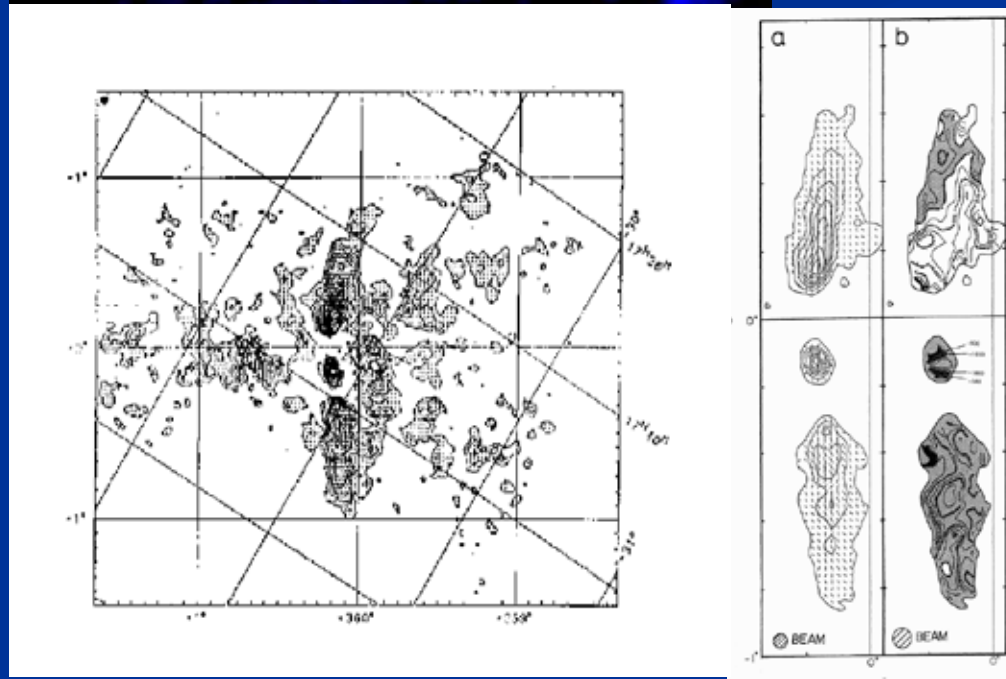
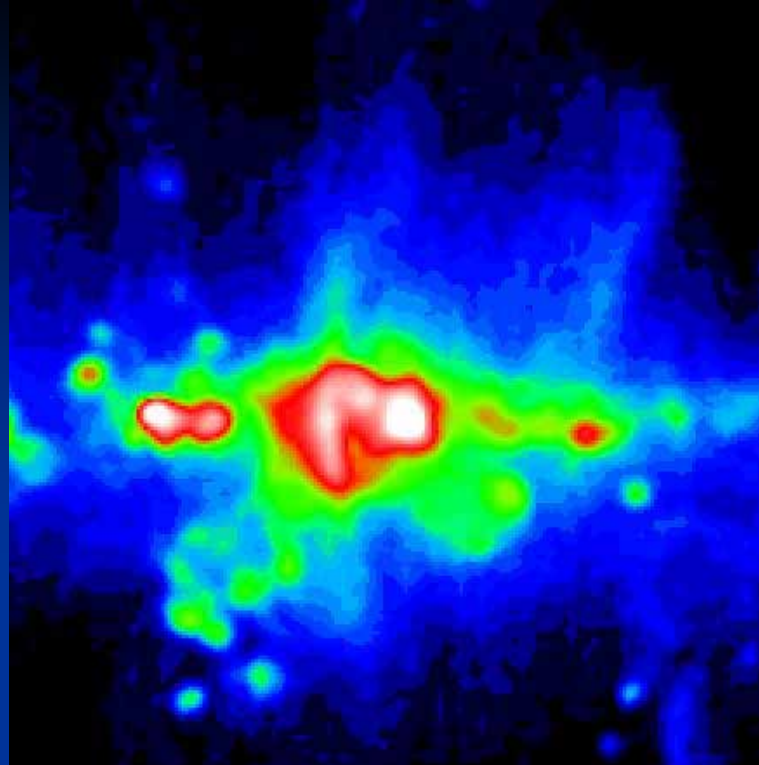


Copyright: MPIfR Bonn (M.Krause & S.Schoofs)



The Galactic Center

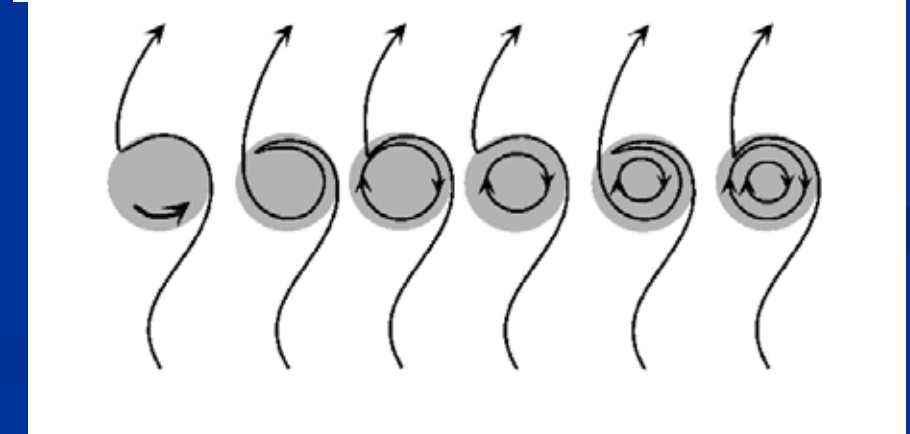
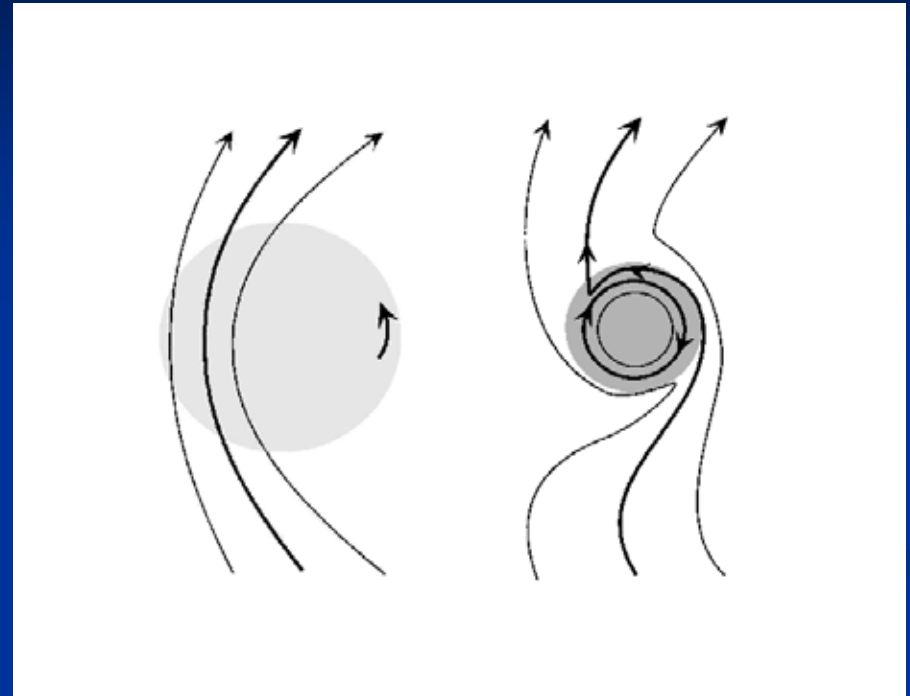
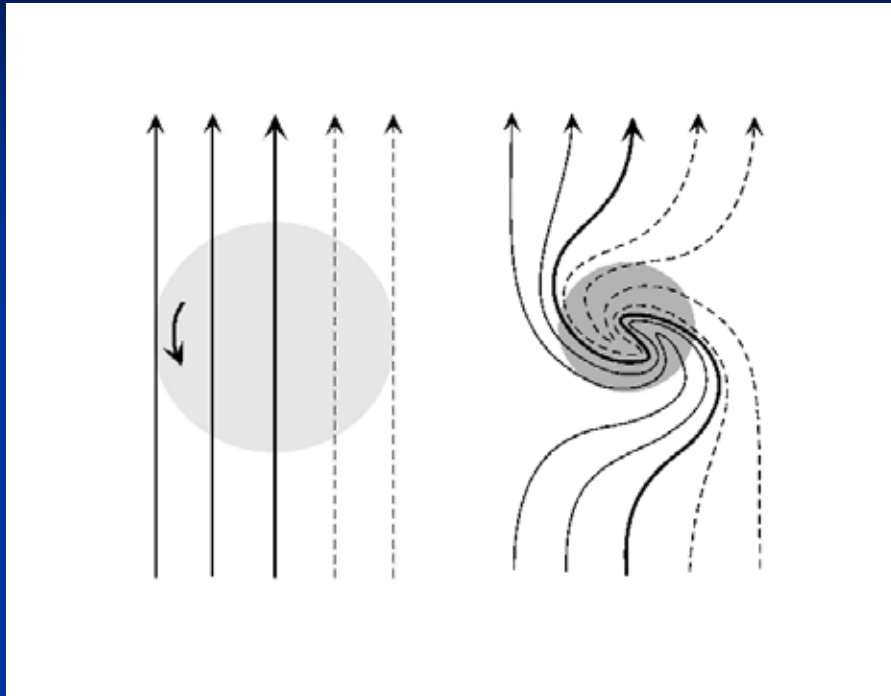
(Tsuboi et al. 1980's
Sofue et al. 1980')



3. 磁場の起源

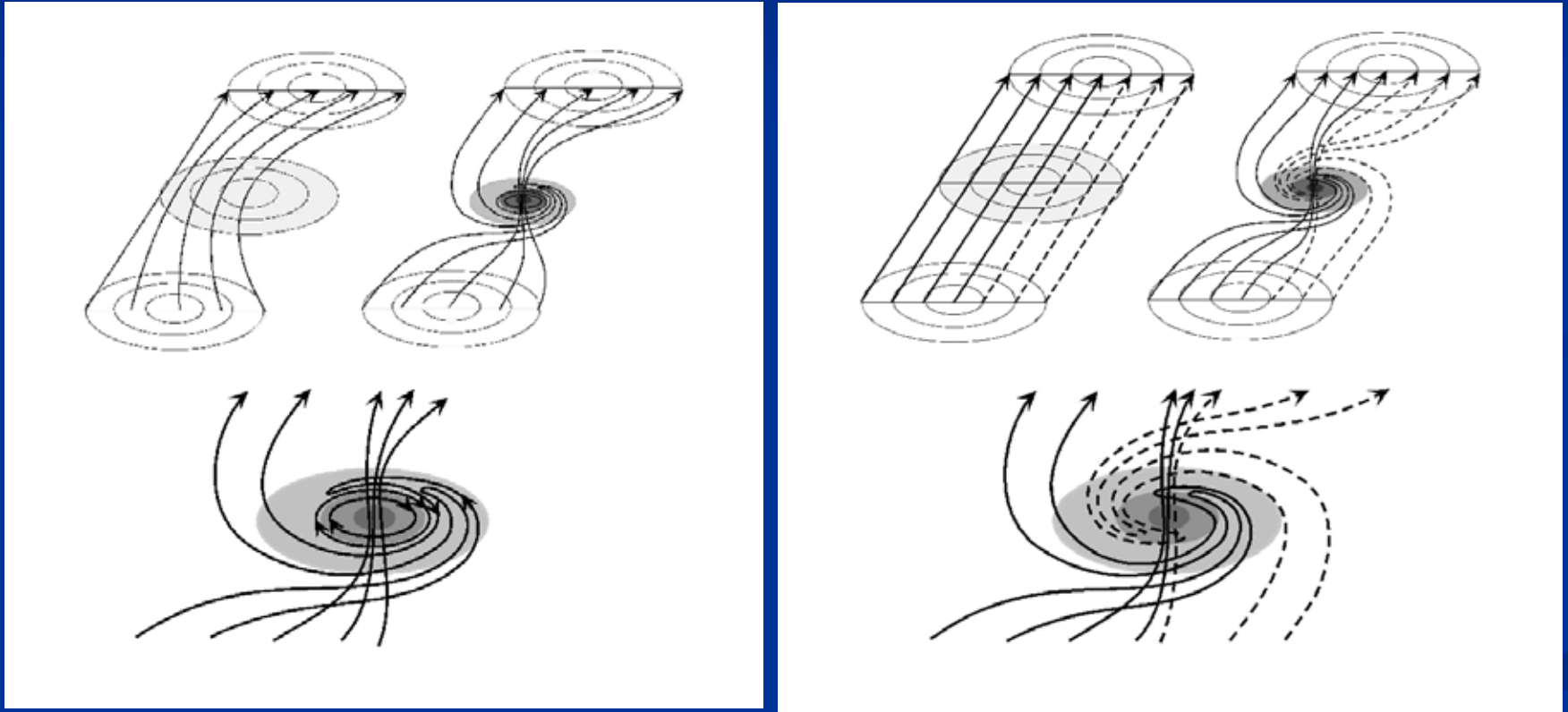
宇宙磁場 vs ダイナモ

Cosmological Origin

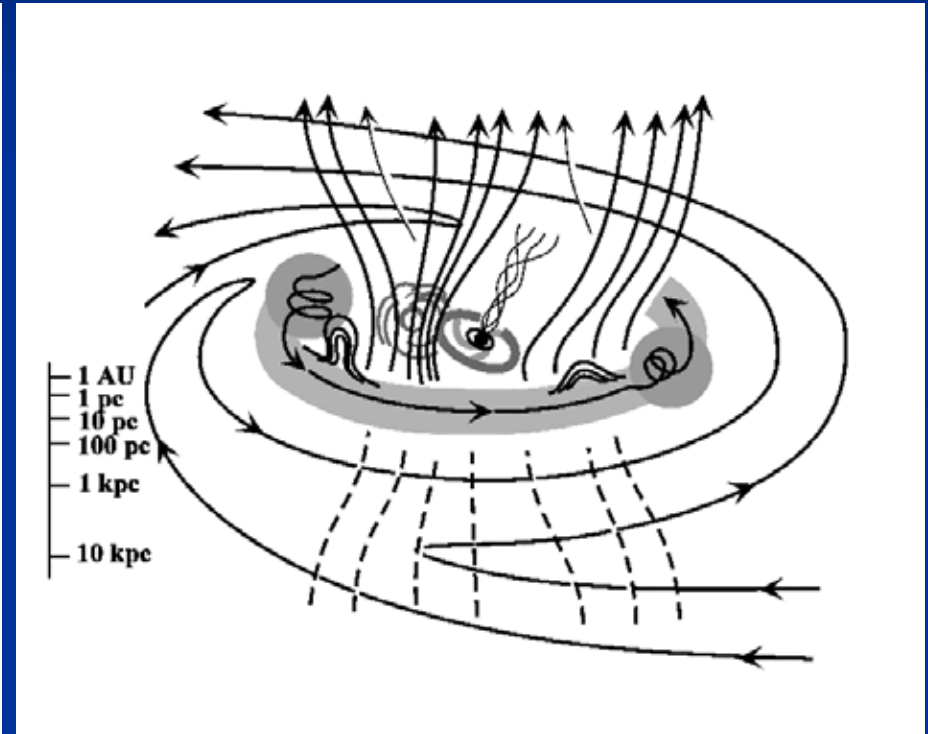
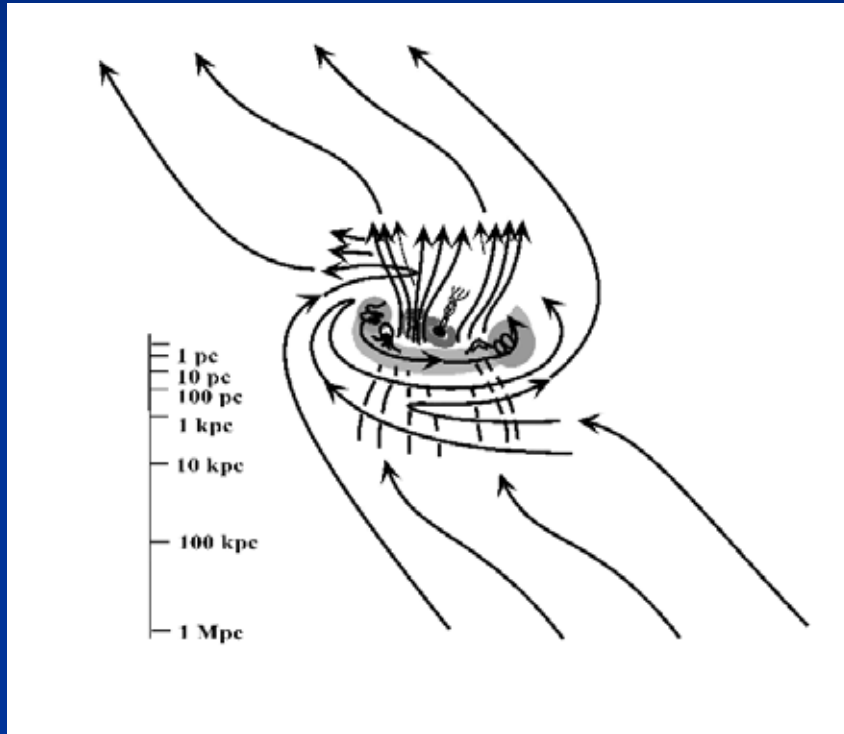


BSS & Ring

Unified Magview of Cosmological Origin

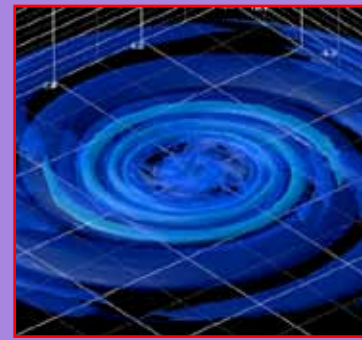
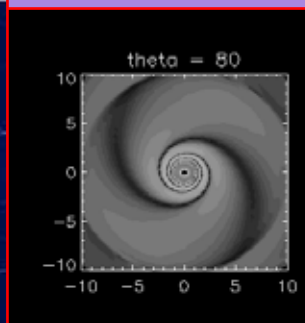
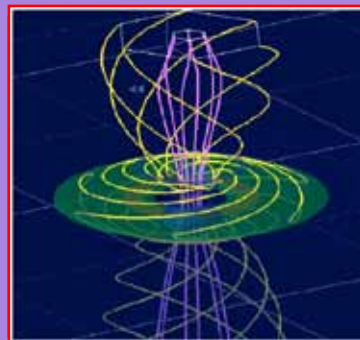
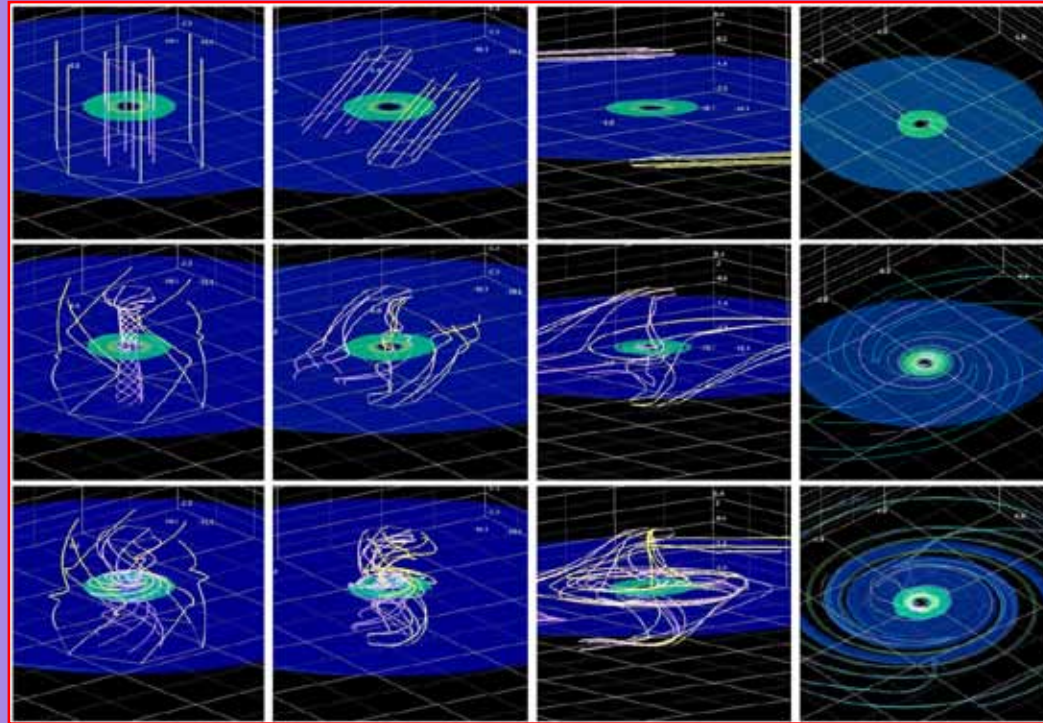


Cosmological Origin of GC V-field



MHD Simulation (Sofue, Machida, Kudoh 2010)

B



B^2