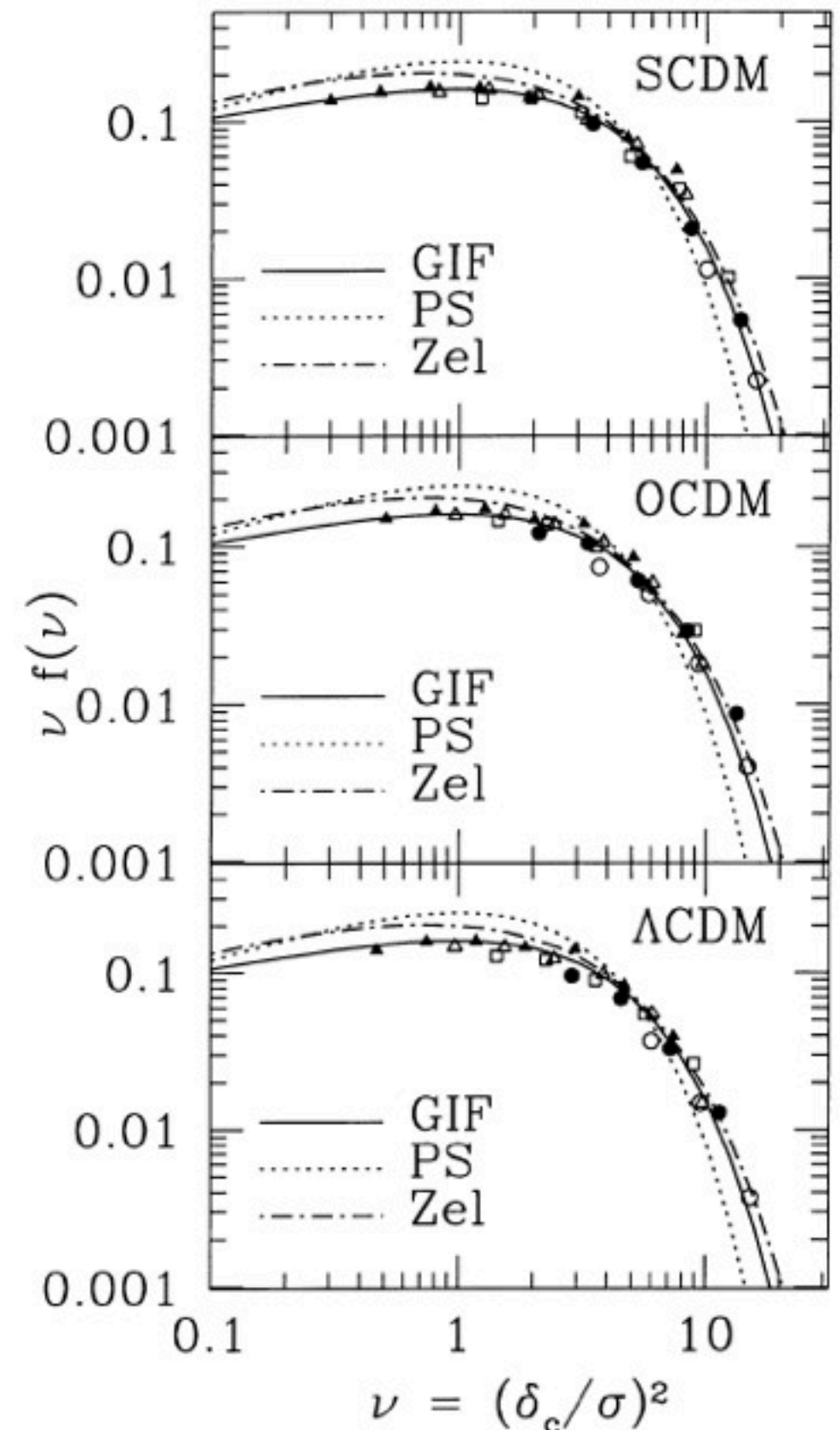# Lecture 7

Testing the P-S formalism

✓ Define objects in a simulation (using a group finder).

✓ Measure their mass.

✓ Compare the resulting mass function to model predictions.

Result: Need ellipsoidal collapse

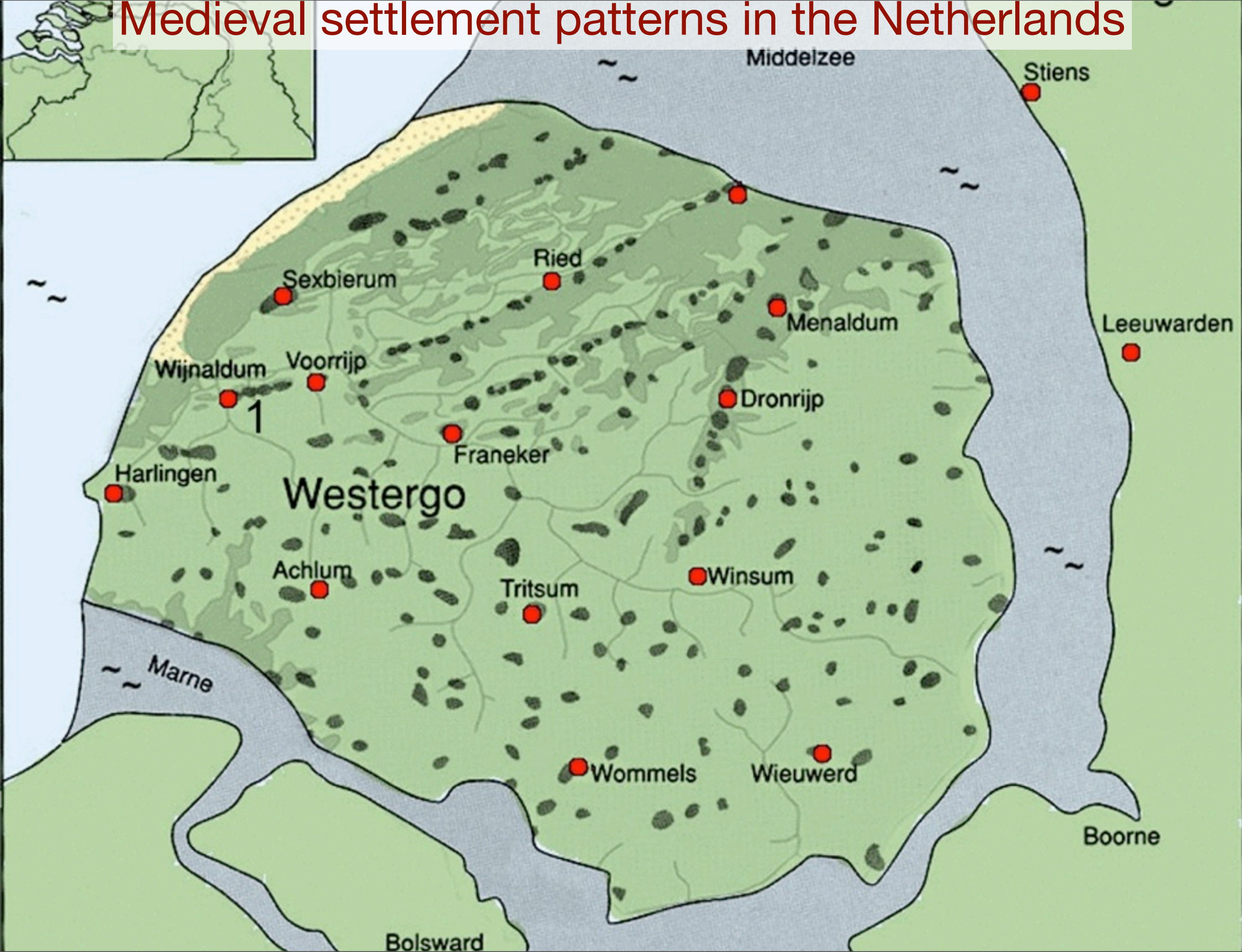$$f_{\mathrm{EC}}(\nu) = A \left(1 + \frac{1}{\hat{\nu}^{2q}} \right) f_{\mathrm{PS}}(\hat{\nu})$$
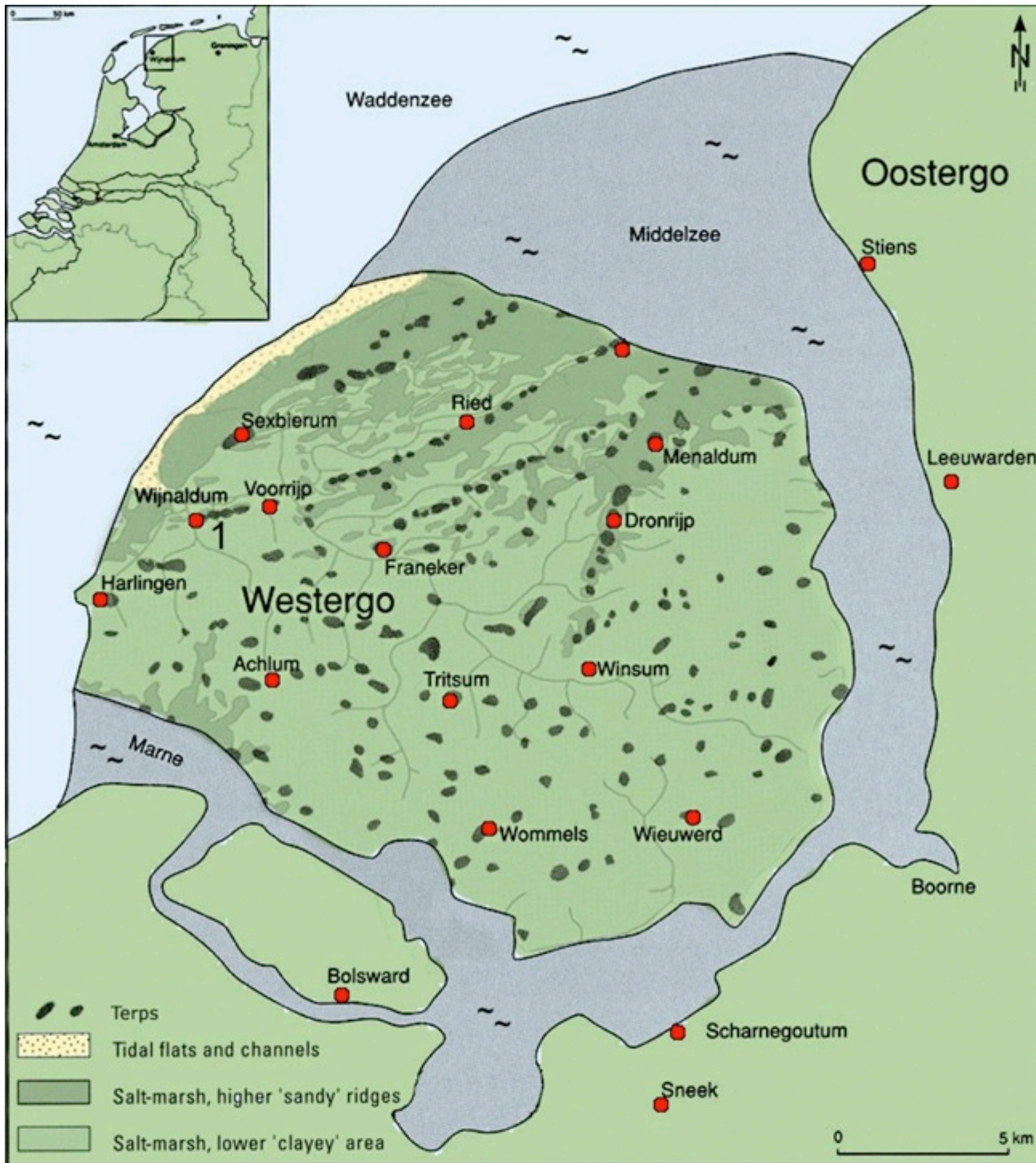
$$\hat{\nu} = 0.84\nu \qquad q = 0.3 \qquad A \approx 0.322$$
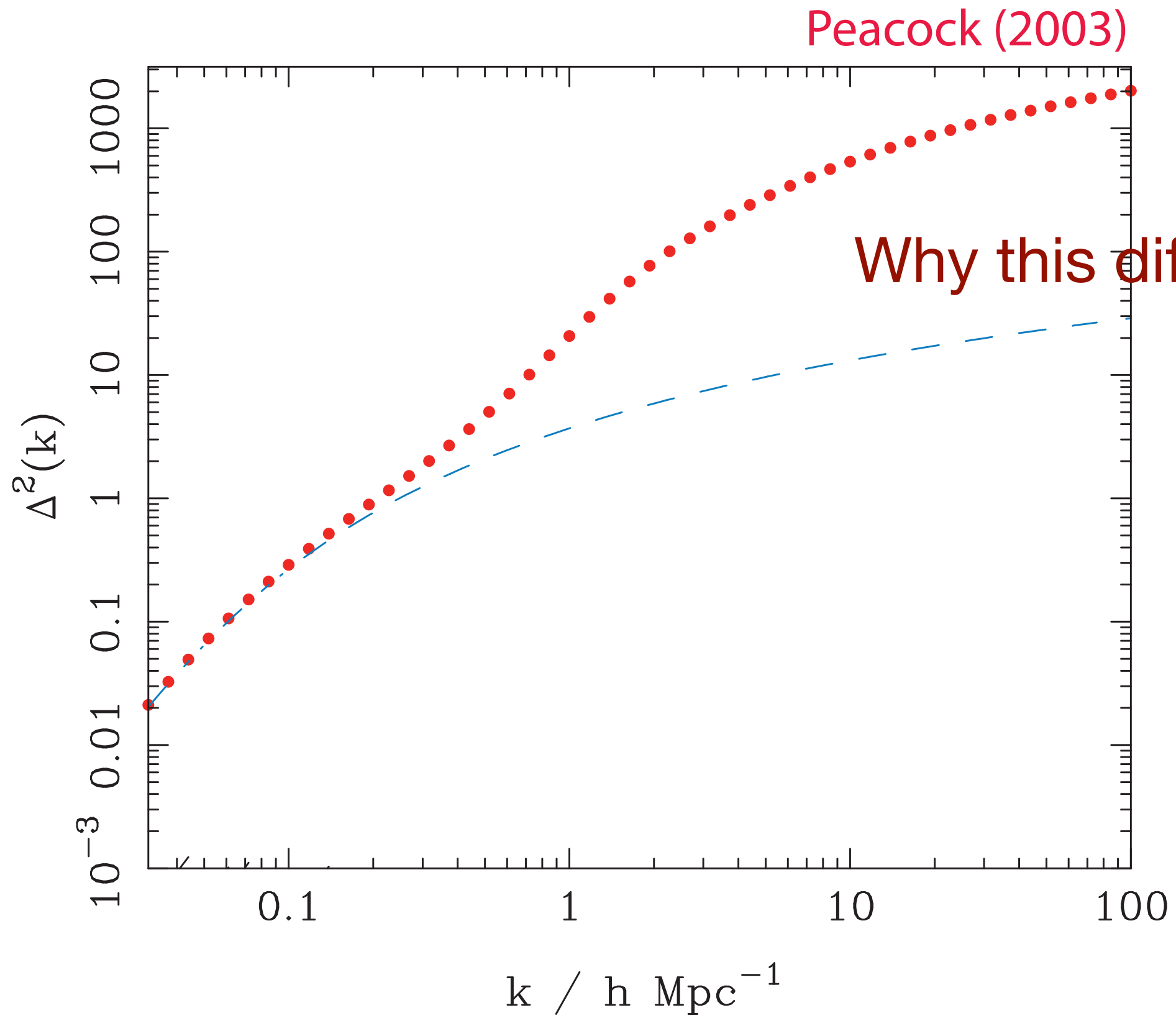
Sheth & Tormen (1999)

Medieval settlement patterns in the Netherlands

Waddenzee

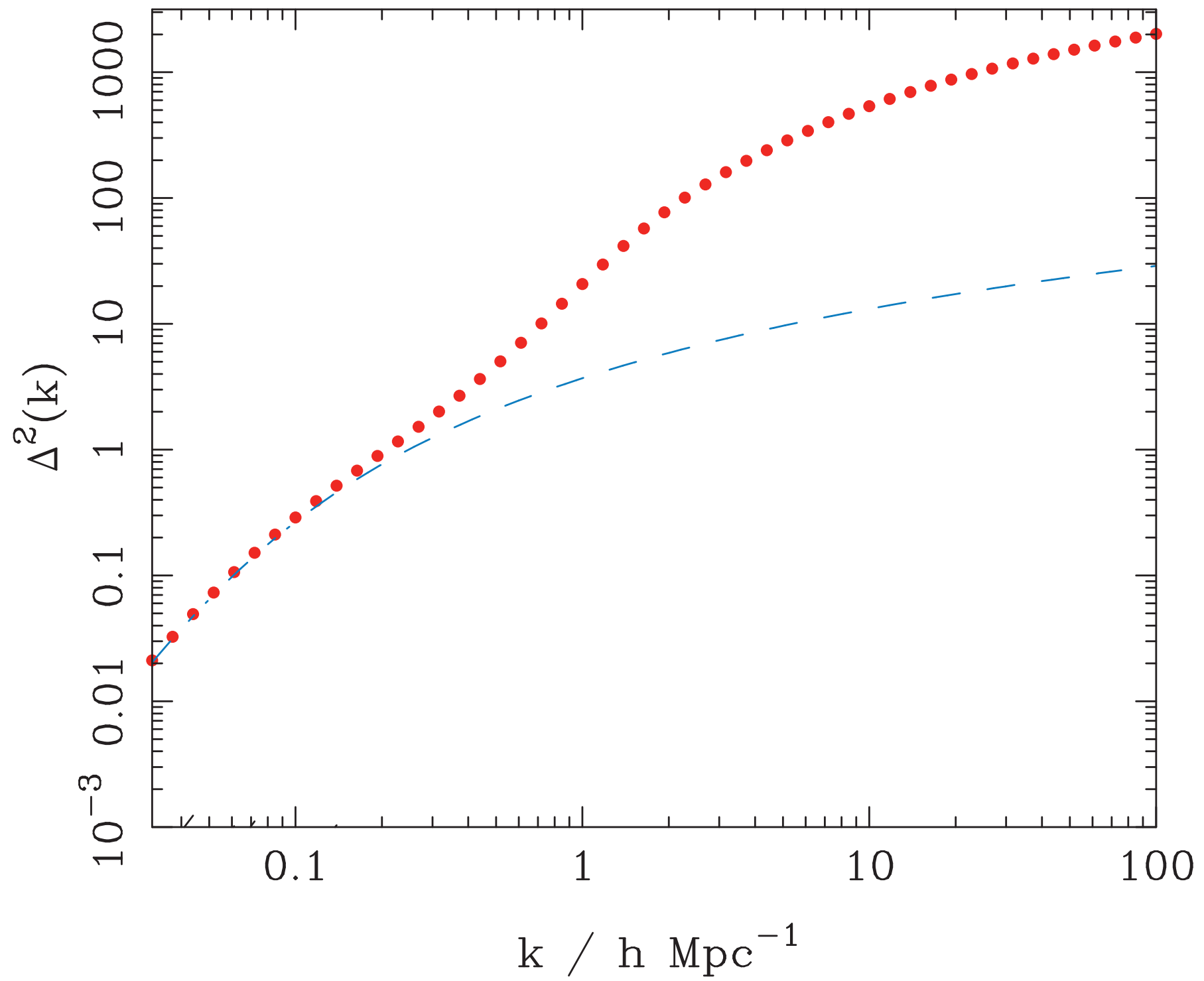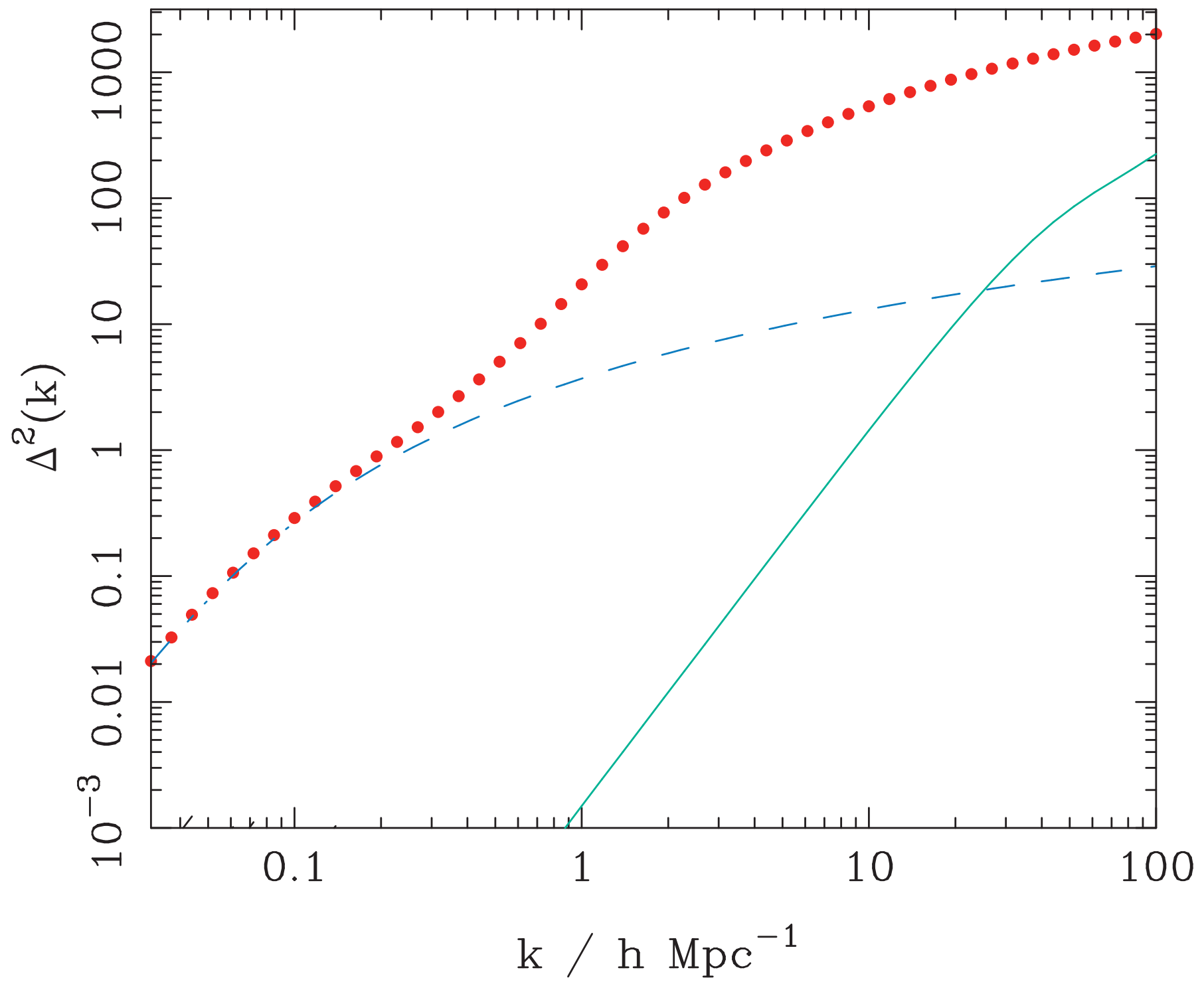Oostergo

Middelzee

Stiens

Ried

Sexbierum

Menaldum

Leeuwarden

Wijnaldum Voorrijp

1

Dronrijp

Harlingen

Franeker

Westergo

Achlum

Tritsum

Winsum

Marne

Wommels

Wieuwerd

Boorne

Bolsward

Scharnegoutum

Sneek

Terps

Tidal flats and channels

Salt-marsh, higher 'sandy' ridges

Salt-marsh, lower 'clayey' area

0   5 km

N

Peacock (2003)

Why this difference?

$\Delta^2(k)$

$k\ /\ h\ \mathrm{Mpc}^{-1}$

Peacock (2003)

Monday, 17 March 14

Peacock (2003)

Peacock (2003)

$\Delta^2(k)$

$k \; / \; h \; \mathrm{Mpc}^{-1}$

Peacock (2003)

Monday, 17 March 14

Peacock (2003)

$\Delta^2(k)$

$k \ / \ h \ \mathrm{Mpc}^{-1}$
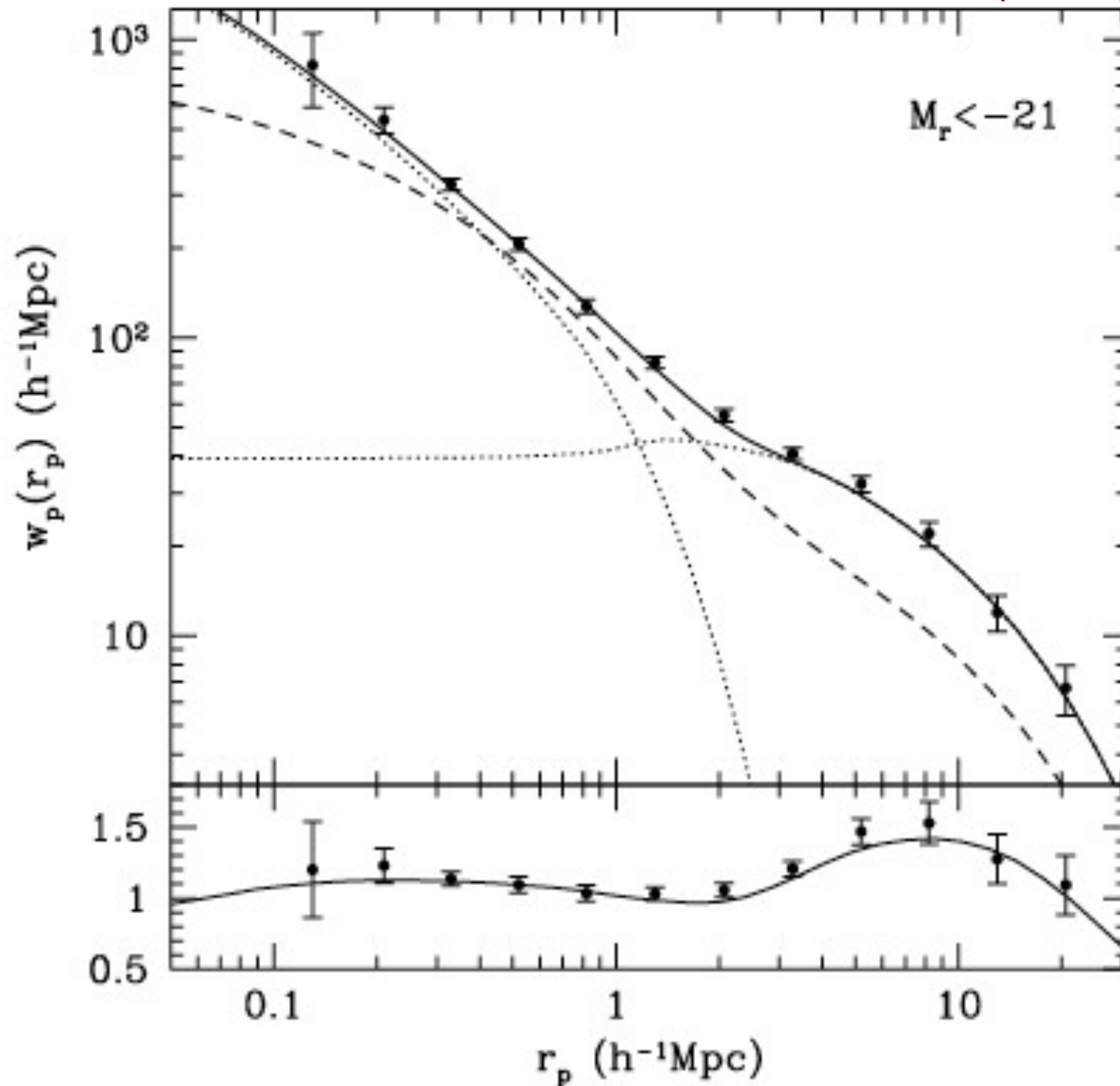
Peacock (2003)

Monday, 17 March 14
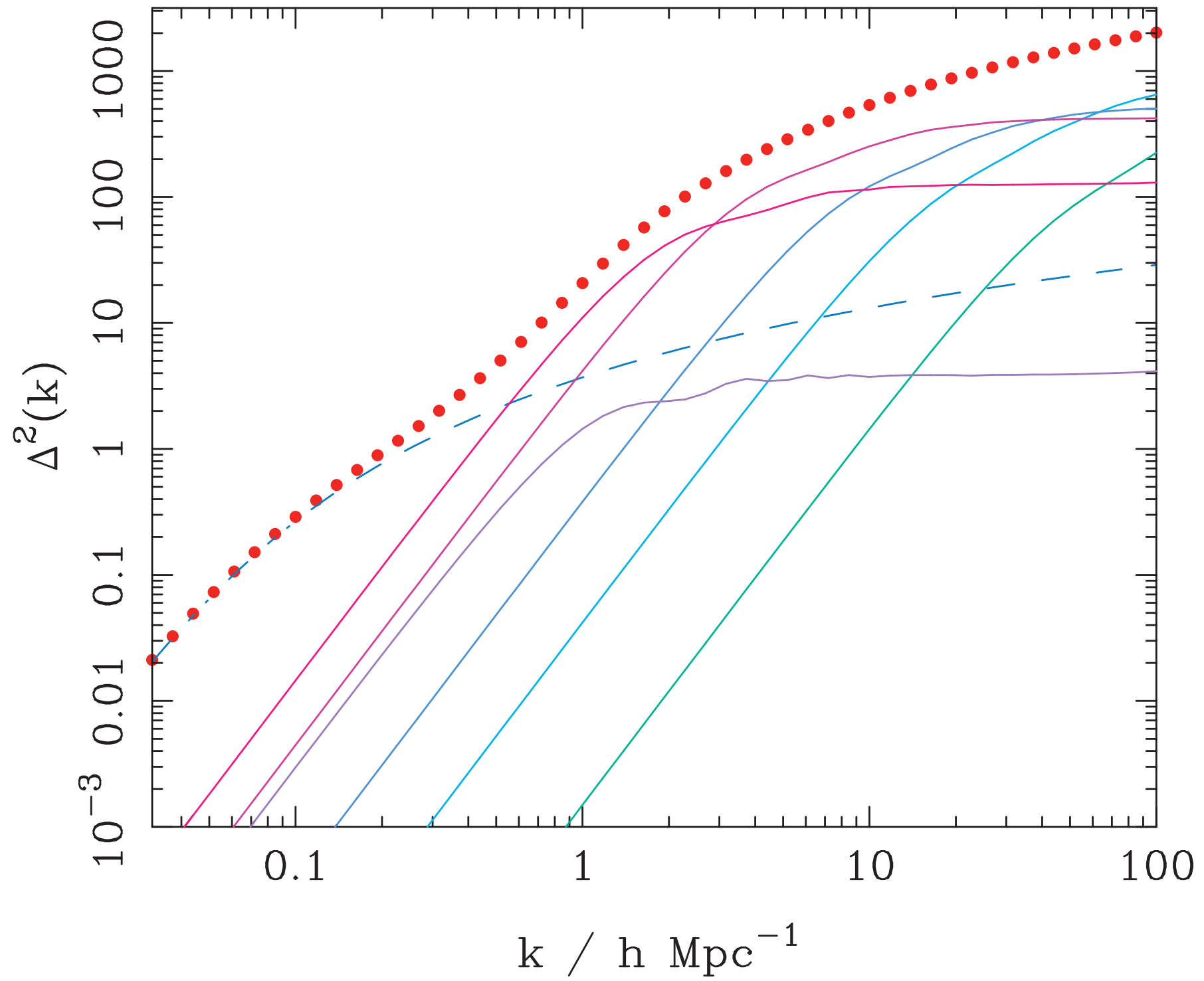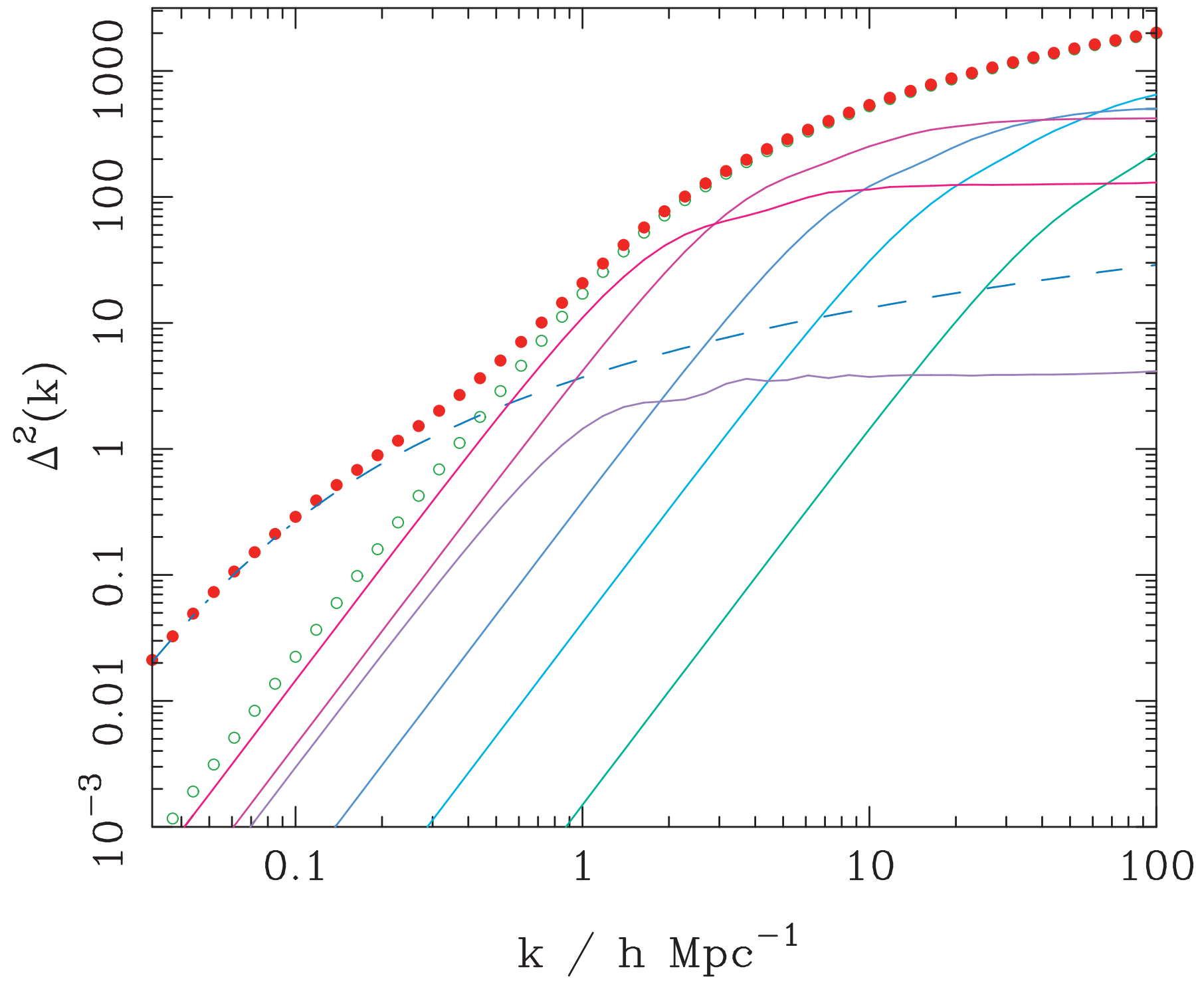
The projected correlation function

Zehavi et al (2004)

Centrals and satellites

Yang et al (2008)

Based on a group catalogue from SDSS - rank groups and infer their halo mass. Then count galaxies in the group and mark centrals & satellites.

Big difference from a Schechter function