Figure 5.1: The 1612 MHz OH spectrum of OH357.3–1.3, showing maximum and minimum flux densities, and the two pairs of channels, with strong and weak flux densities, selected to test the DCF method.
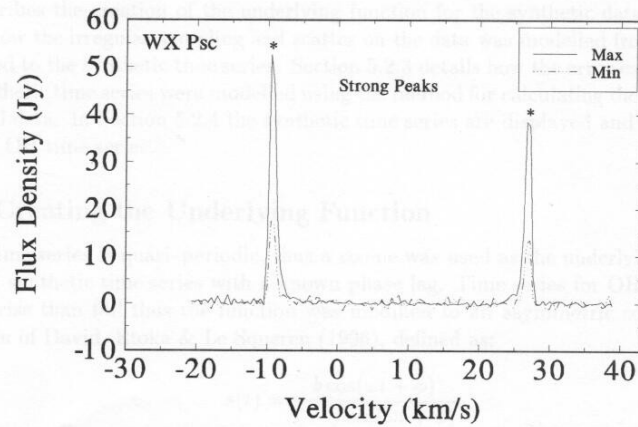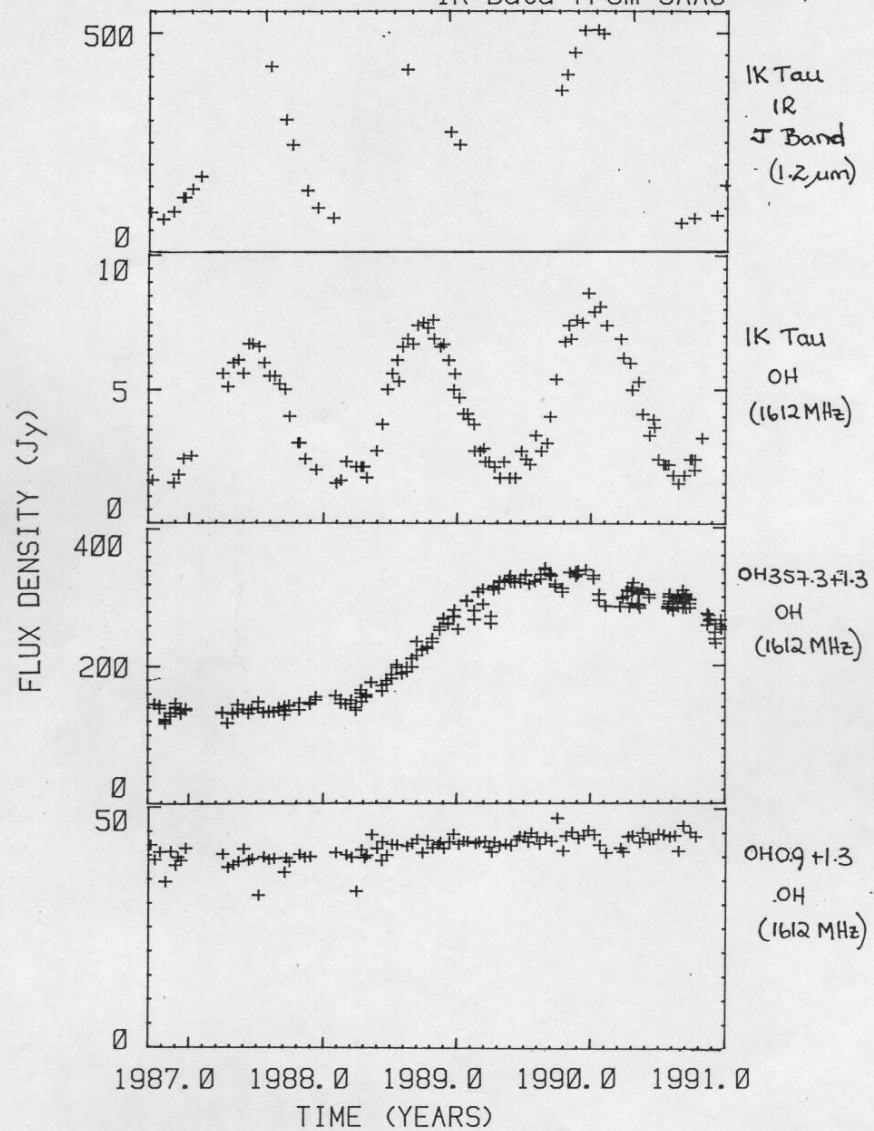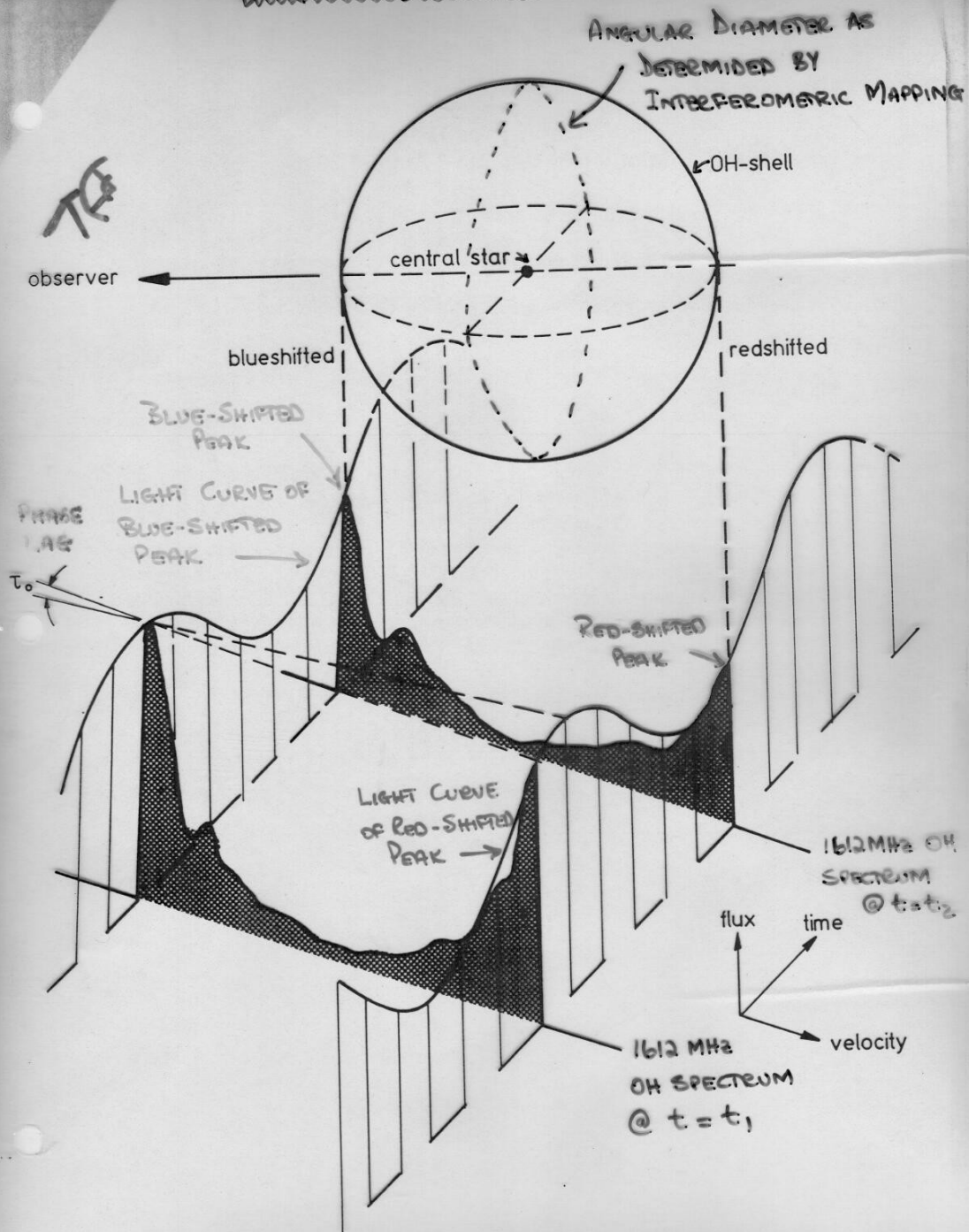

Figure 5.2: The 1612 MHz OH spectrum of WX Psc, showing maximum and minimum flux densities, and the channels with the strongest flux densities, selected to test the DCF method.
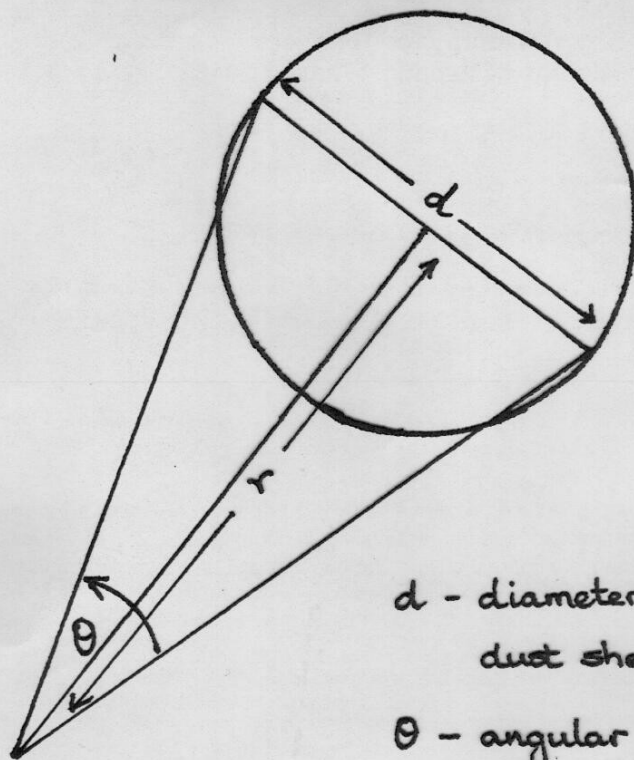
Long Term Behaviour of 3 OH/IRs
Monitored at HartRAO
IR Data from SAAO

THE OH/IR STAR

ANGULAR DIAMETER AS DETERMINED BY INTERFEROMETRIC MAPPING

OH-shell

central star

observer ←

blueshifted   redshifted

BLUE-SHIFTED PEAK

LIGHT CURVE OF BLUE-SHIFTED PEAK

PHASE LAG

τ_0

RED-SHIFTED PEAK

LIGHT CURVE OF RED-SHIFTED PEAK

1612 MHz OH SPECTRUM @ $t = t_2$

flux   time

velocity

1612 MHz OH SPECTRUM @ $t = t_1$

VAN LANGEVELDE ET AL., A&A, 239, 193 (1990)

FINDING THE DISTANCE TO AN OH/IR STAR

d — diameter of OH/IR Star dust shell

θ — angular diameter of OH/IR Star dust shell

r — distance to OH/IR Star

Simple geometry: $d \approx r\theta$
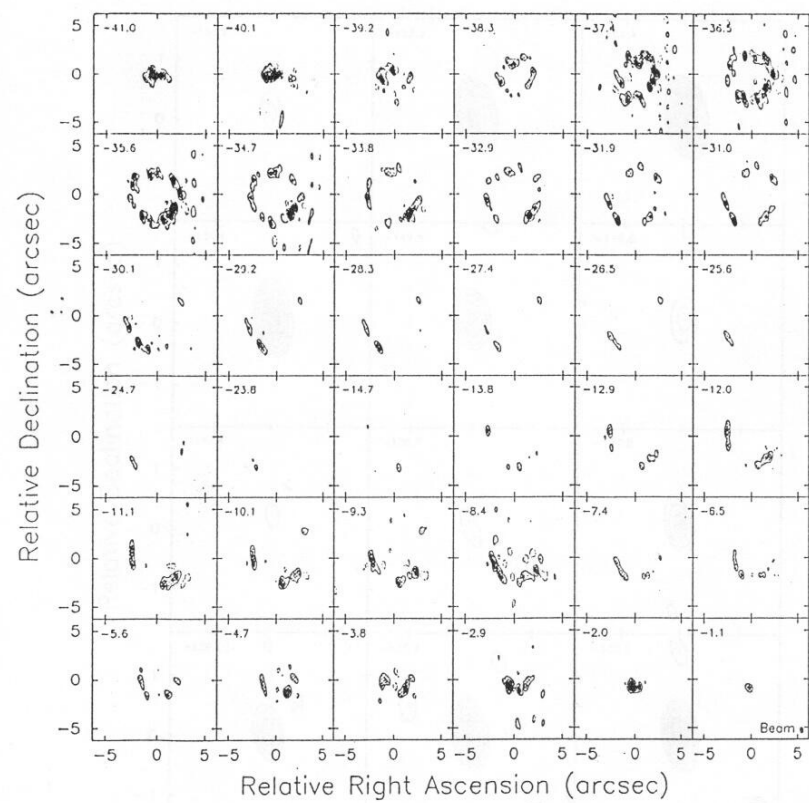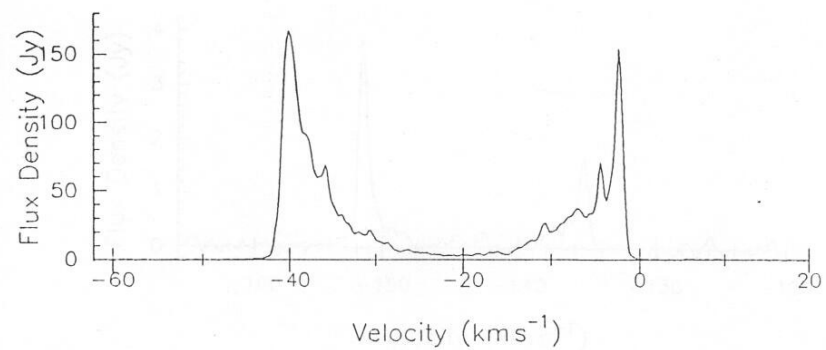
$\therefore r \approx d/\theta$

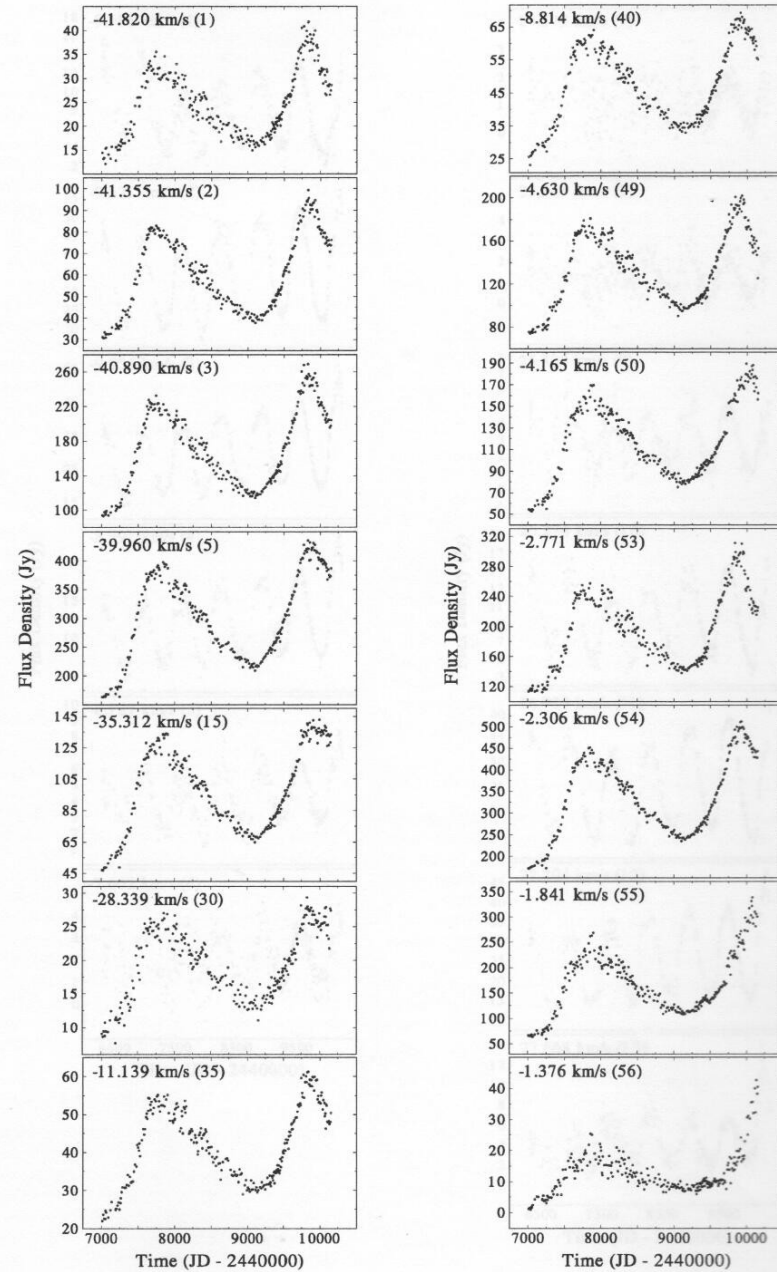Figure 2.10: MERLIN spectral line maps of OH357.3 (26/04/88)

Figure 3. Time series for selected channels from OH357.3-1.3: the velocity of the channel, with the channel number in brackets, is shown at top left.
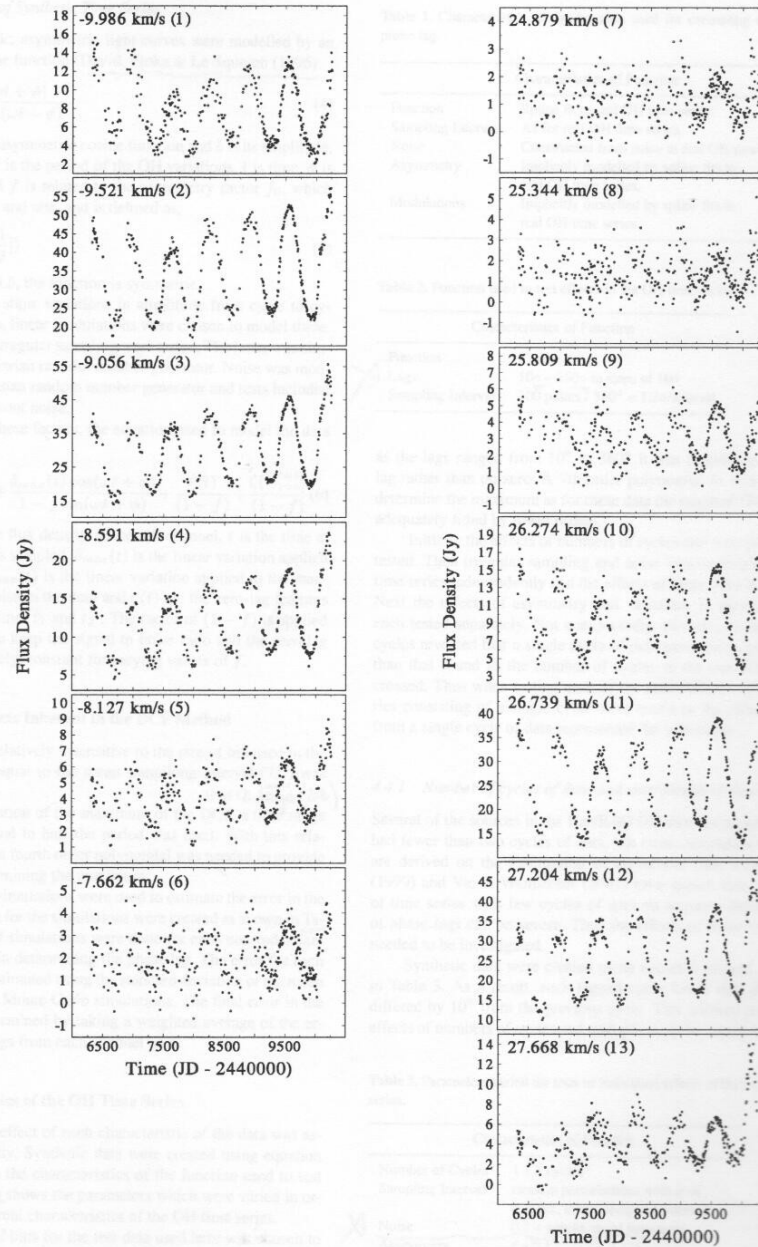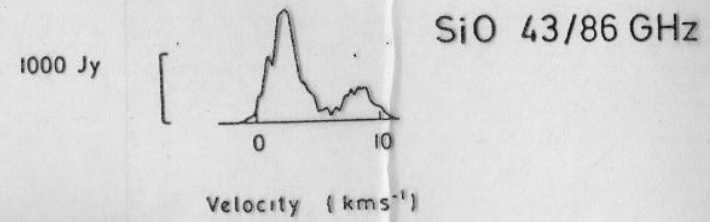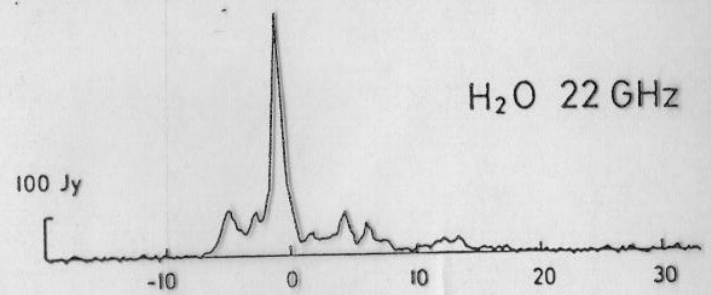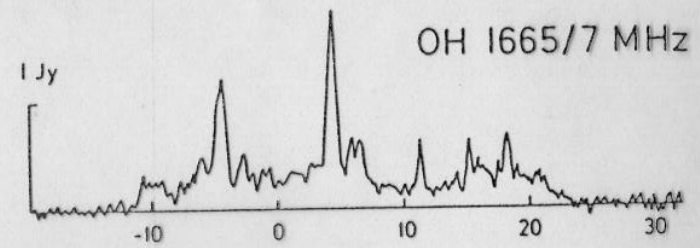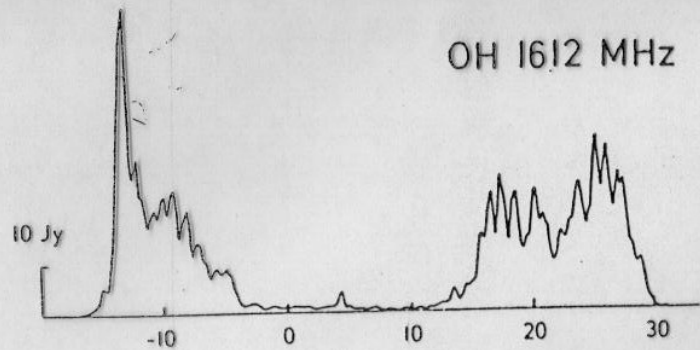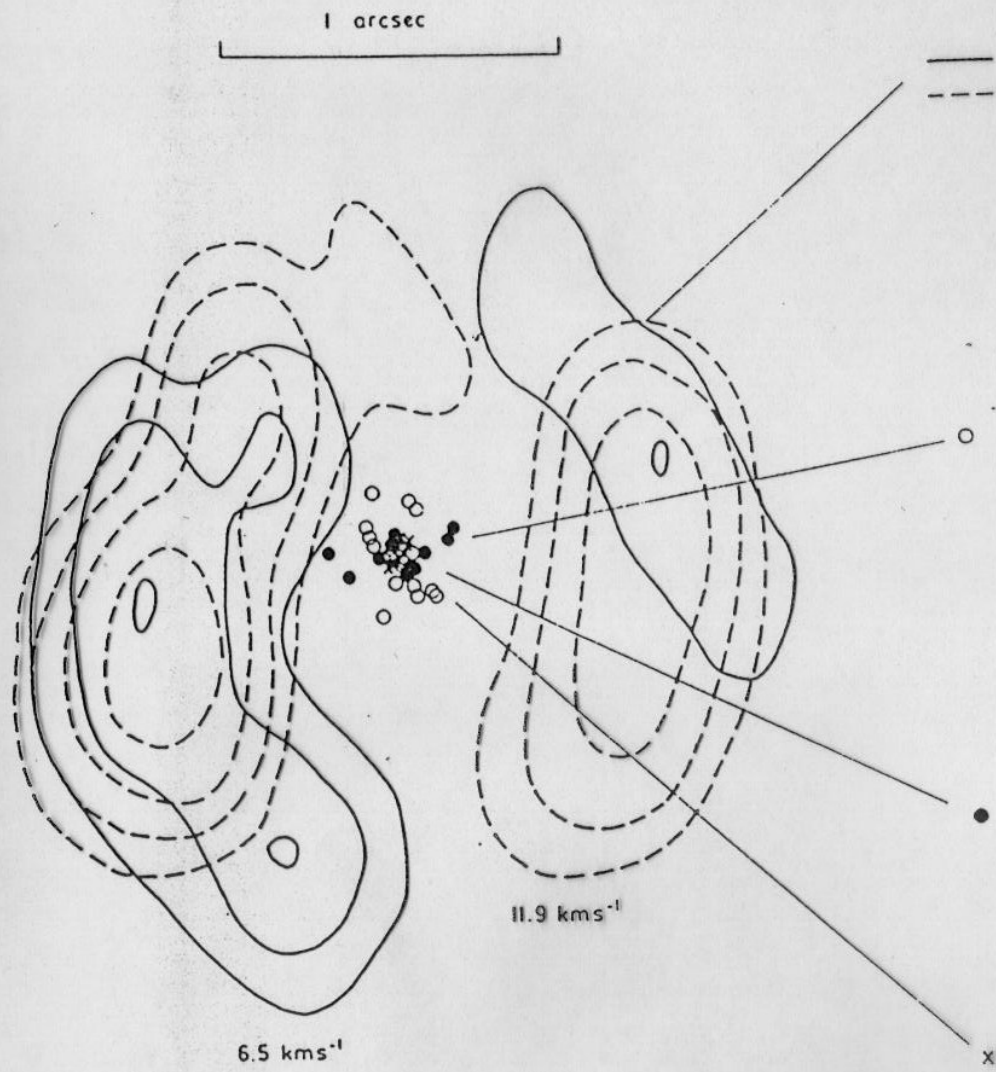
Figure 4. Time series for all channels selected for determining the phase lag for WX Psc: the velocity of the channel, with the channel number in brackets, is

1 arcsec

OH 1612 MHz

10 Jy

-10   0   10   20   30

OH 1665/7 MHz

1 Jy

-10   0   10   20   30

11.9 kms^{-1}

H_2O 22 GHz

100 Jy

-10   0   10   20   30

6.5 kms^{-1}

SiO 43/86 GHz

1000 Jy

0   10

Velocity (kms^{-1})

MASER EMISSION FROM THE CIRCUMSTELLAR
ENVELOPE OF VX SAGITTARII