# The TPOL trend panel:
# predicting the plateau polarisation

- Online fit to the polarimeter data

- The TPOL trend panel

# Online fits to the polarimeter data

Reminder: polarimeter measurements arrive one minute behind

Straight-line fit: predict present polarisation using slope $m$

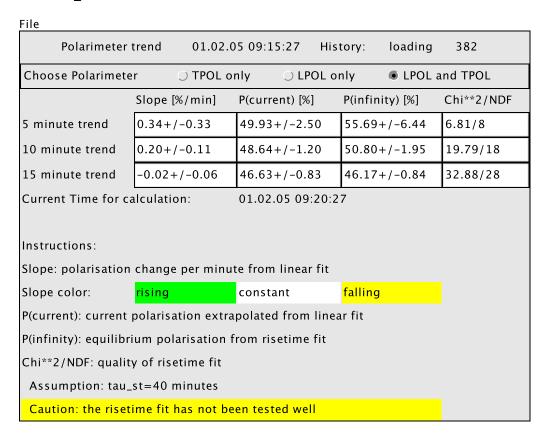$$P(t) = P_{avg} + m(t - t_{avg})$$

Risetime fit: use risetime formula

$$P(t) = f P_{st} (1 \mp \exp[-\frac{t - t_0}{f \tau_{st}}])$$

$$P_{st} = 92.4\%, \quad \tau_{st} = 40 \, \text{min}$$

Determine $f$ from data and predict $P_\infty = f P_{st}$.

# The TPOL trend panel

File

| Polarimeter trend | 01.02.05 09:15:27 | History: | loading | 382 |
|---|---|---|---|---|

| Choose Polarimeter | ○ TPOL only | ○ LPOL only | ● LPOL and TPOL |
|---|---|---|---|

|  | Slope [%/min] | P(current) [%] | P(infinity) [%] | Chi**2/NDF |
|---|---|---|---|---|
| 5 minute trend | 0.34+/−0.33 | 49.93+/−2.50 | 55.69+/−6.44 | 6.81/8 |
| 10 minute trend | 0.20+/−0.11 | 48.64+/−1.20 | 50.80+/−1.95 | 19.79/18 |
| 15 minute trend | −0.02+/−0.06 | 46.63+/−0.83 | 46.17+/−0.84 | 32.88/28 |

Current Time for calculation: 01.02.05 09:20:27

Instructions:

Slope: polarisation change per minute from linear fit

Slope color: rising constant falling

P(current): current polarisation extrapolated from linear fit

P(infinity): equilibrium polarisation from risetime fit

Chi**2/NDF: quality of risetime fit

Assumption: tau_st=40 minutes

Caution: the risetime fit has not been tested well

Polarimeter trend is calculated using:

- TPOL and/or LPOL

- last 5, 10, or 15 minutes