Physics 421 / PCSE 503
Lecture 13

Weather!

Model   Test

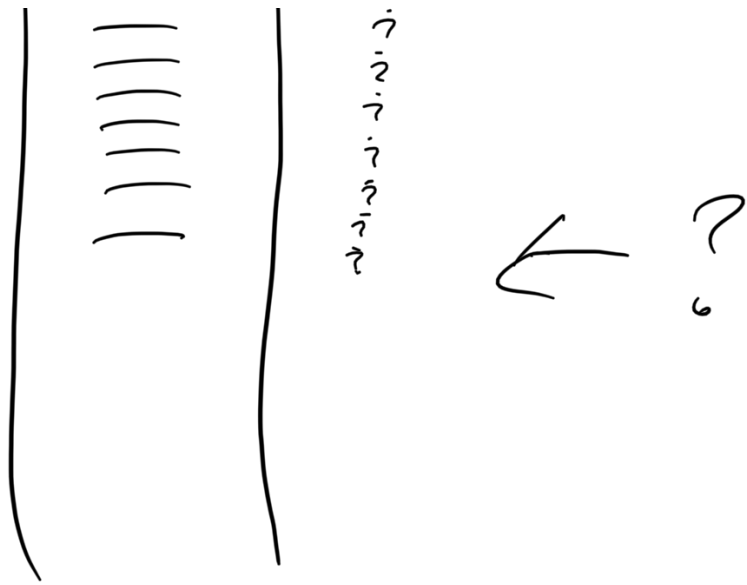| 1, 2, 3 days ago |

Today
vs.
Prediction

date _time → | Un patch ←

temp C   temp-1

| ⟶ | ?

What variables are important?

Pearson Correlation Co-efficient.

$$\boxed{r} \rightarrow -1 \ldots 1$$

$$\boxed{r^2} \rightarrow 0 \ldots 1$$

temp C vs. pressure – ↓

higher   lower

lower   higher

tempC – 1   2   3

DewpointC – 1

maxtempC – 1

7.   mintempC – 1

Sunflour – 1

humidity – 1

pressure – 1

2986 data points

22 2/1 parameter fit

$$y_{fit} = \boxed{\beta_0} + \beta_1 \, temp^{c-1} + \beta_2 \, temp^{-c}$$

$\vdots$

$\beta_{22} \, pressure^3$

OVER FITTING

$$\boxed{P\text{-value}} \rightarrow 1 - \text{confidence level}$$

$\uparrow$

95%

$P\text{-value} \rightarrow 0.05$

If $P_{data} < 0.05$

→ valid statistical effect

If $P_{data} > 0.05$

→ no effect

① temp C - 1

② Dewpoint C - 3

③ min temp C - 2

④ max temp C - 3

⑤ pressure - 2

⑥ pressure - 3

⑦ humidity - 3

⑧ min temp C - 1

temp C (today

vs.

y fit