

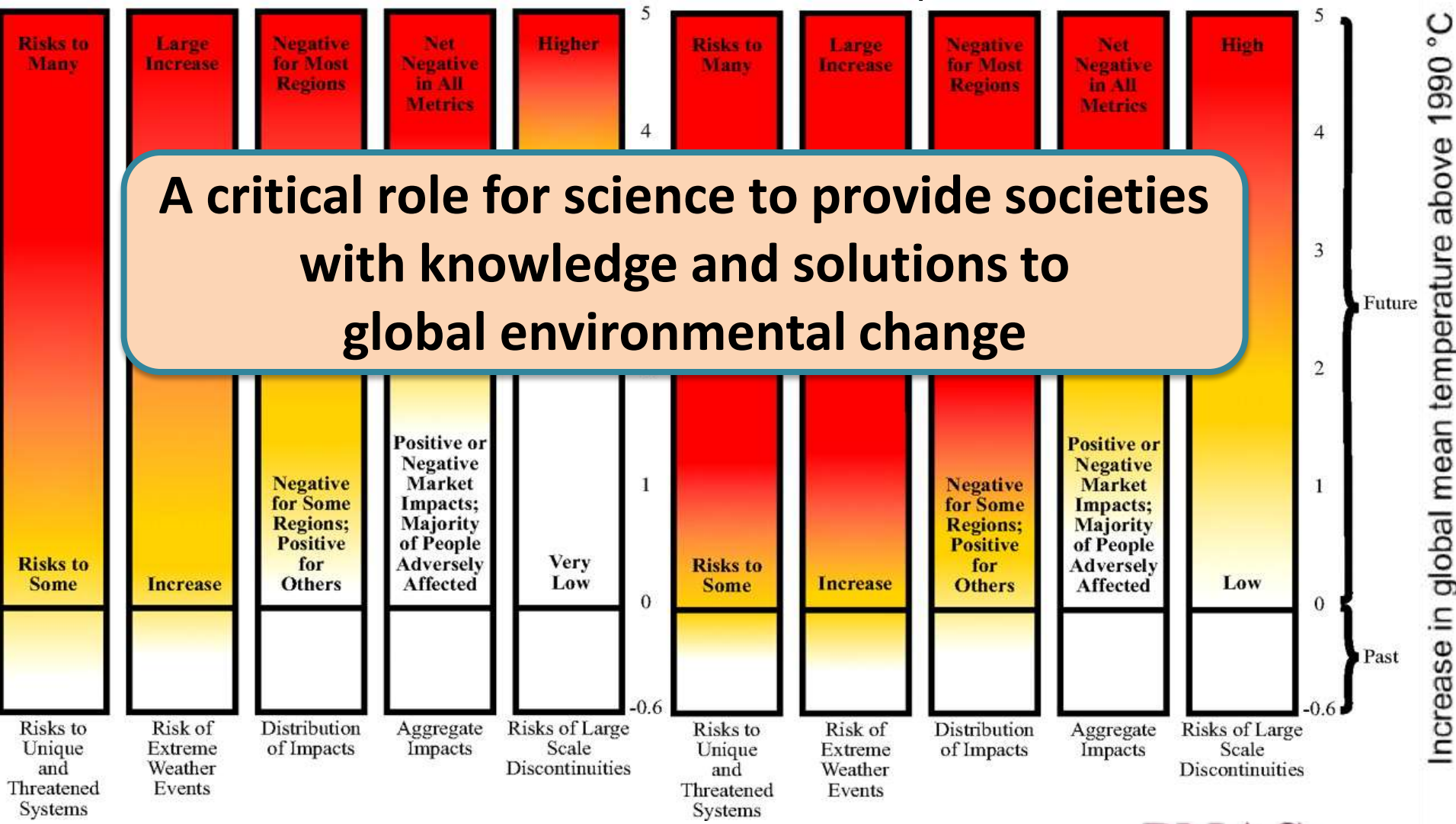
Prof. Deliang CHEN, ICSU Executive Director



**Visioning: Towards a new initiative on Earth
system research for global
sustainability research**

Living in a rapidly changing world

Climate change risk – reasons for concern
 2001 Updated



What happened after that?

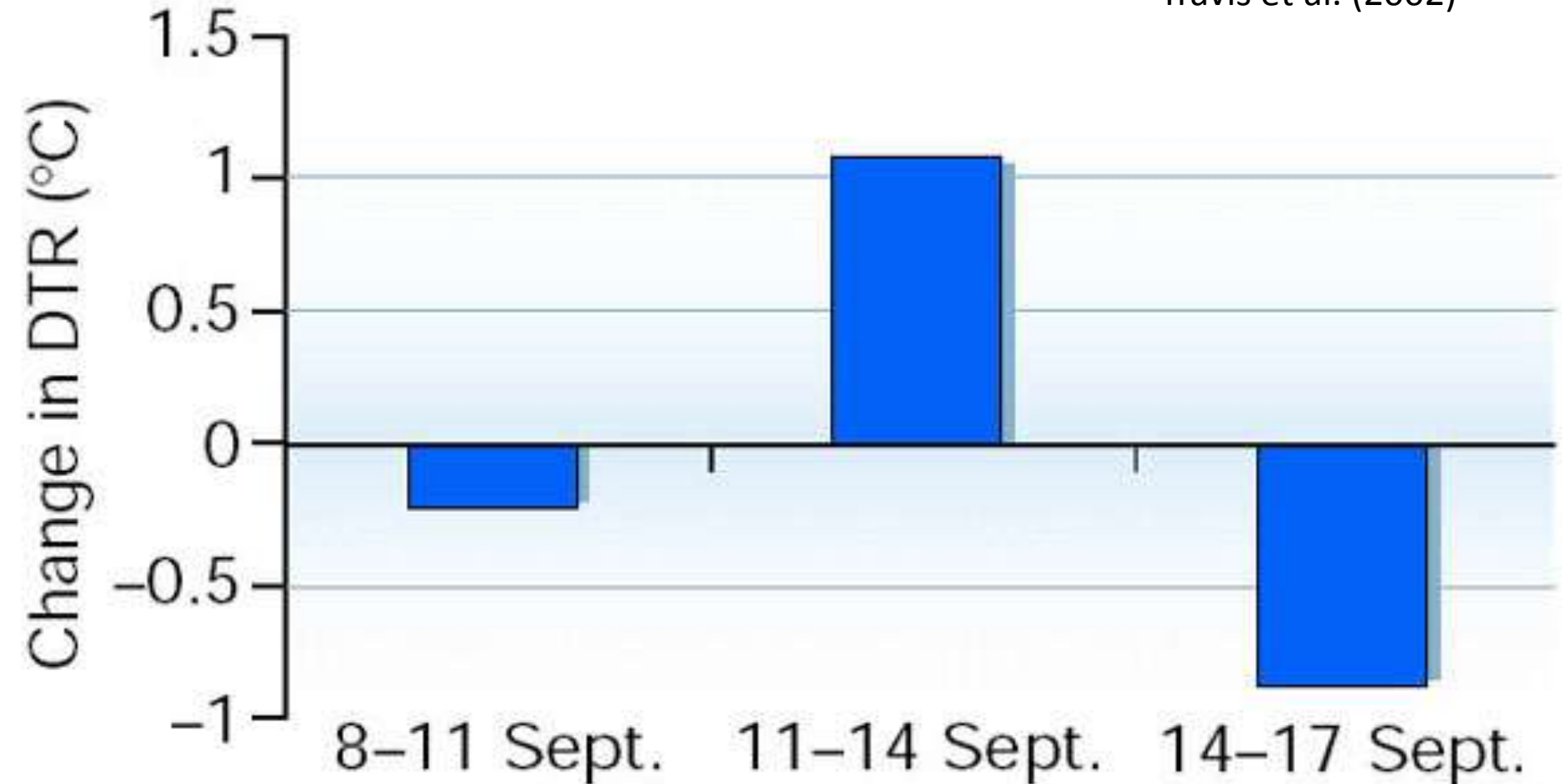


All the contrails disappeared!



DTR: daily temperature range (the maximum-the minimum)

Travis et al. (2002)



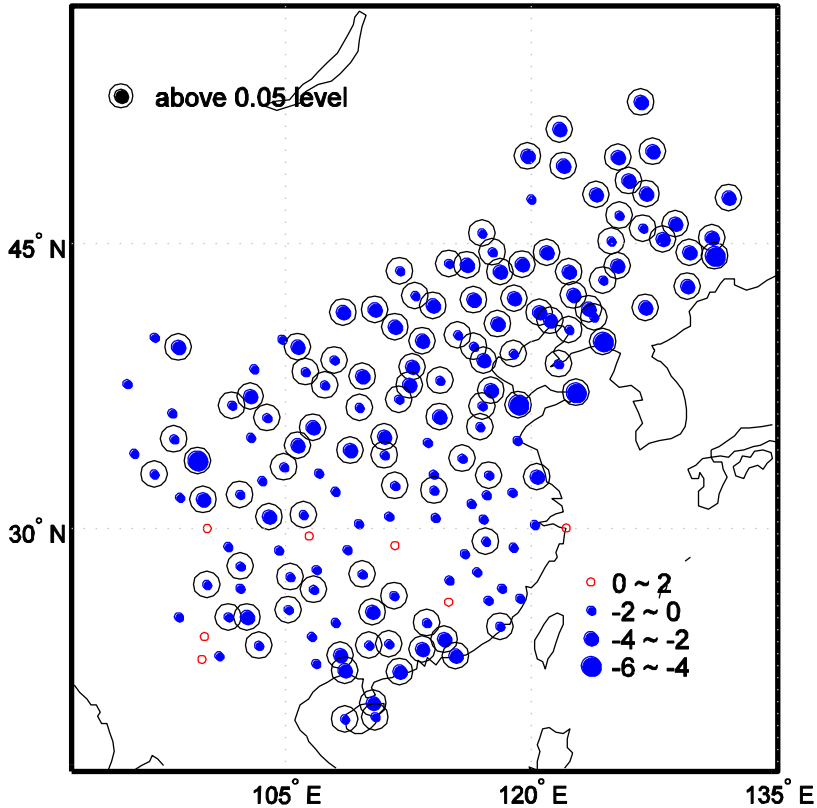
Particulates and air pollution

- **Particulates**, alternatively referred to as **particulate matter (PM)**, **aerosols** or **fine particles**, are tiny particles of solid (a smoke) or liquid (an aerosol) suspended in a gas.



Aerosol pollution over Northern India and Bangladesh - Photo: [NASA](#)

(a) $p \leq 10\text{mm/day}$, 1956-2005, days/10yr

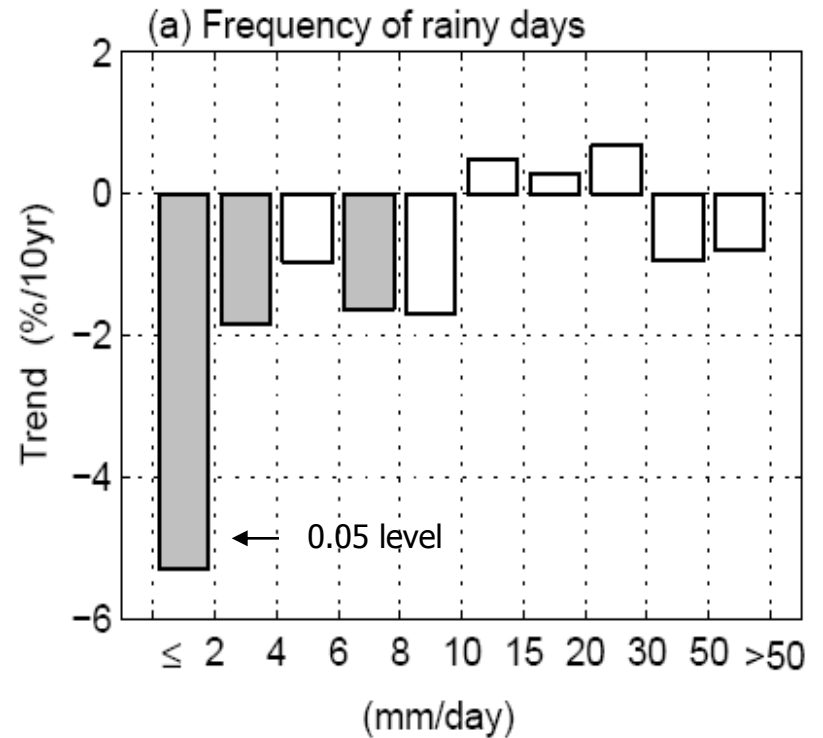


Linear trend of the number of light rain days during the time period 1956-2005. Unit: days/10yr. **JJA.**

Regional mean trends [10mm/day]:

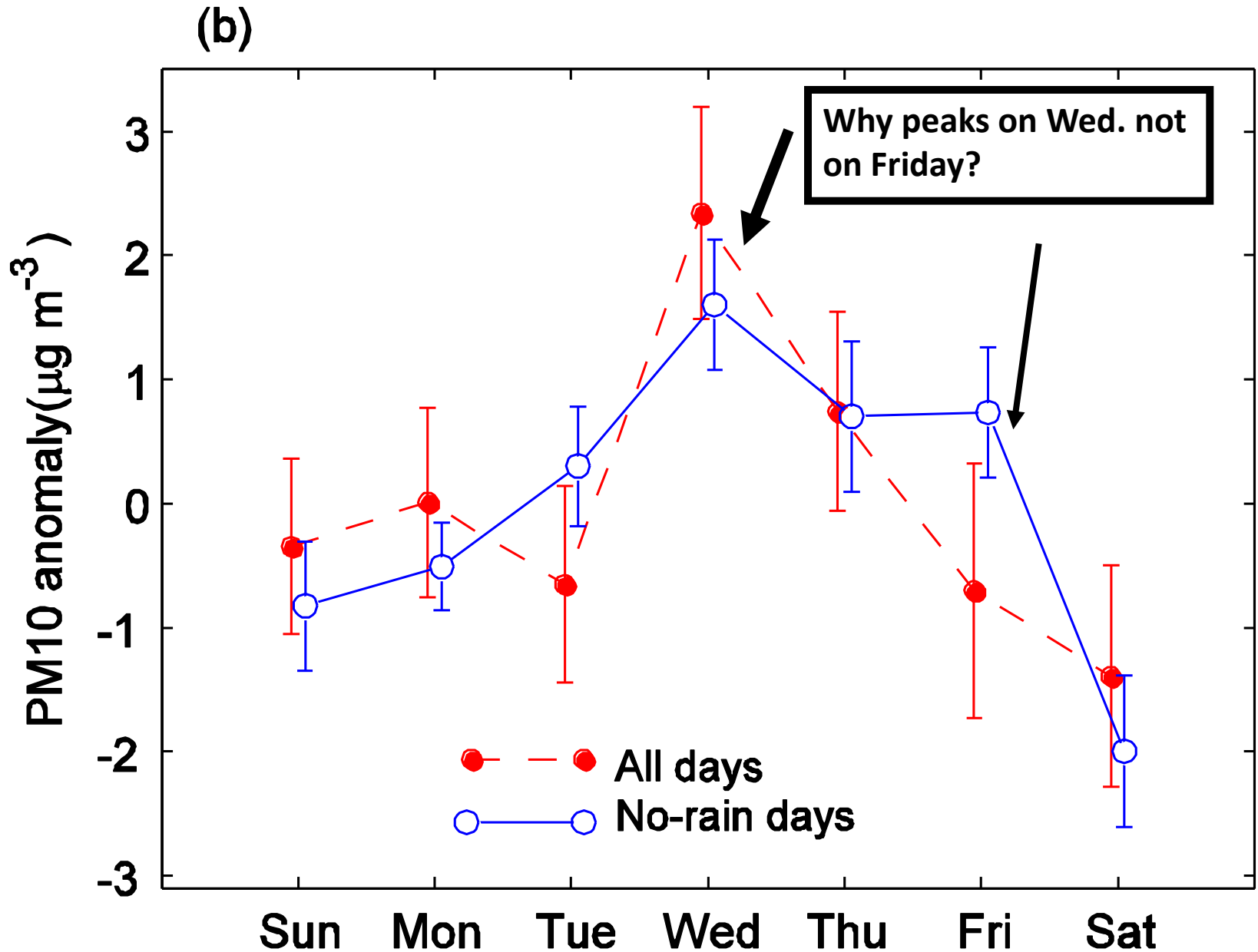
1956-05: -1.7days/10yr [$\sim 20\%$]

1980-05: -2.4days/10yr, 0.01 level

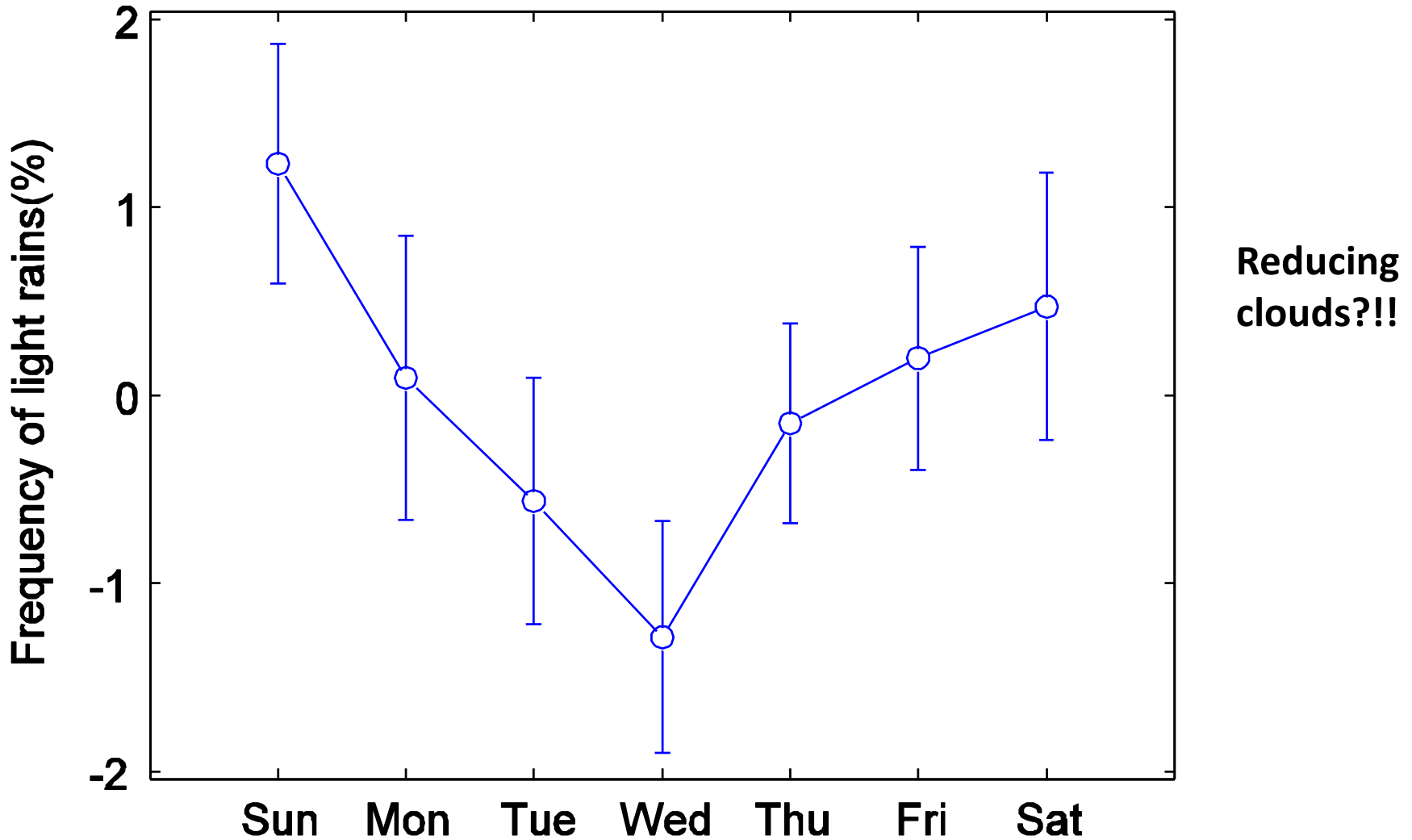


PM10 concentrations from Sunday through Saturday. JJA, 2001-2006.

Error bars are ± 1 standard error about the 29-sample mean.



(b)



**Reducing
clouds?!!**

Anomalous frequency of light rains from Sunday through Saturday.

P ≤ 5mm/day, 29 stations, JJA, 2001-2006

Error bars are ± 1 standard error about the 29-sample mean.