

Study of Regional Climate Changes

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□ To diagnose/improve global and regional climate models for simulating *present climate* characteristics--

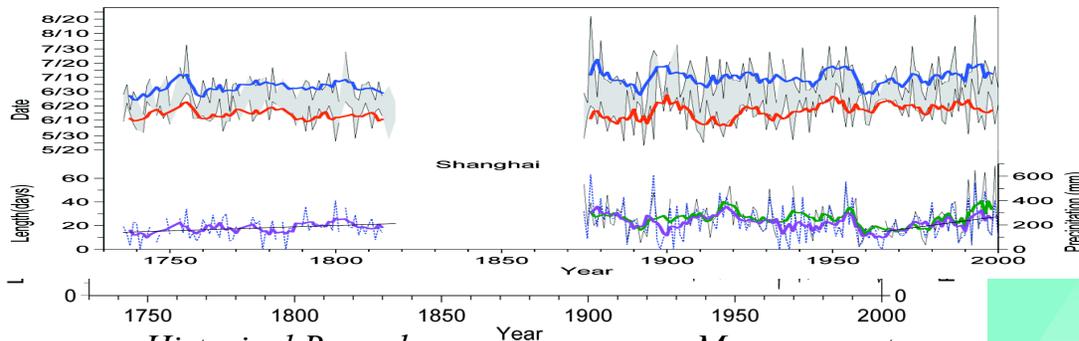
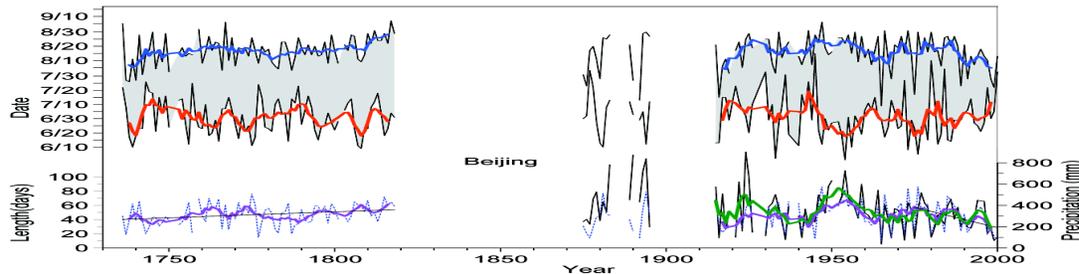
- Model and diagnostic study of the Northeast U. S. winter climate and its relation to the PNA pattern (Notaro et al., 2006, *MWR*, in press)
- Development and evaluation of a warm cloud parameterization using ARM-SGP data (Cheng et al., 2006, *QJRMS*, in revision)

□ To reconstruct/diagnose (and simulate) *past 2000 years climate* using Chinese historical data for providing “natural” (versus the “anthropogenic”) climate variability--

- Reconstruction of winter half-year temperature for the middle and lower reaches of the Yellow river and Yangtze river during the past 2000-years (Ge et al., 2003, *Holocene*).
- Identification of exceptional drought events over eastern China during the last five centuries (Shen et al., 2006, *Climatic Changes*, in revision)
- Correlation study of spring phenophases in recent decades over eastern China and regional climate changes (Zheng et al., et al., 2006, *Climatic Changes*, accepted)
- Reconstruction of Pacific decadal oscillation record since 1470 AD (Shen et al., 2005, *GRL*)
- Reconstruction of high resolution precipitation data over China (Ge et al., 2005, *BAMS*)

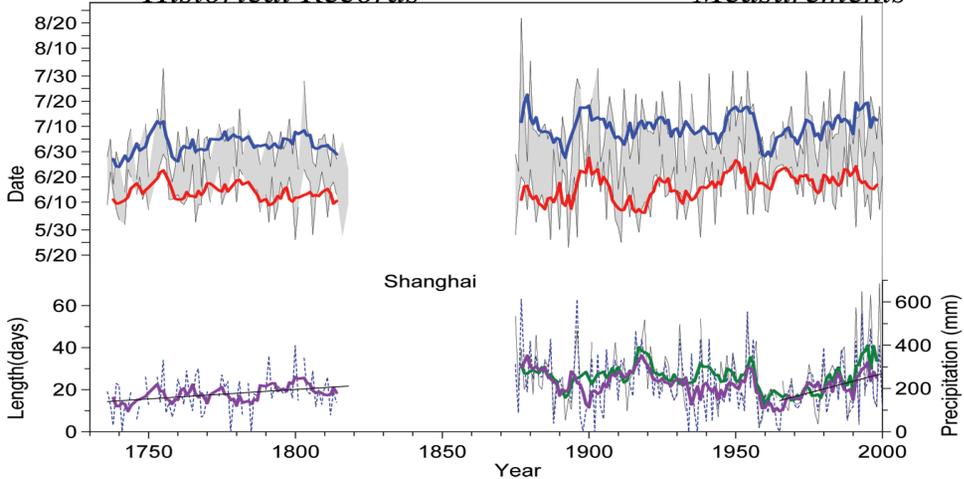
Rainy Season Statistics for Beijing and Shanghai Since 1736

(Red: starting date; Blue: ending date; Purple: length; Green: total rainfall amount)



Historical Records

Measurements



Feature

Shortened duration in Beijing since the 1970s and **longer** seasons in Shanghai since the 1960s, a pattern which has never been seen before.

Possible Cause

Weakened East Asian summer monsoons due to southward movement of **subtropic high** caused by the warming of Equatorial eastern Pacific SST

