



Global Sea Level Rise

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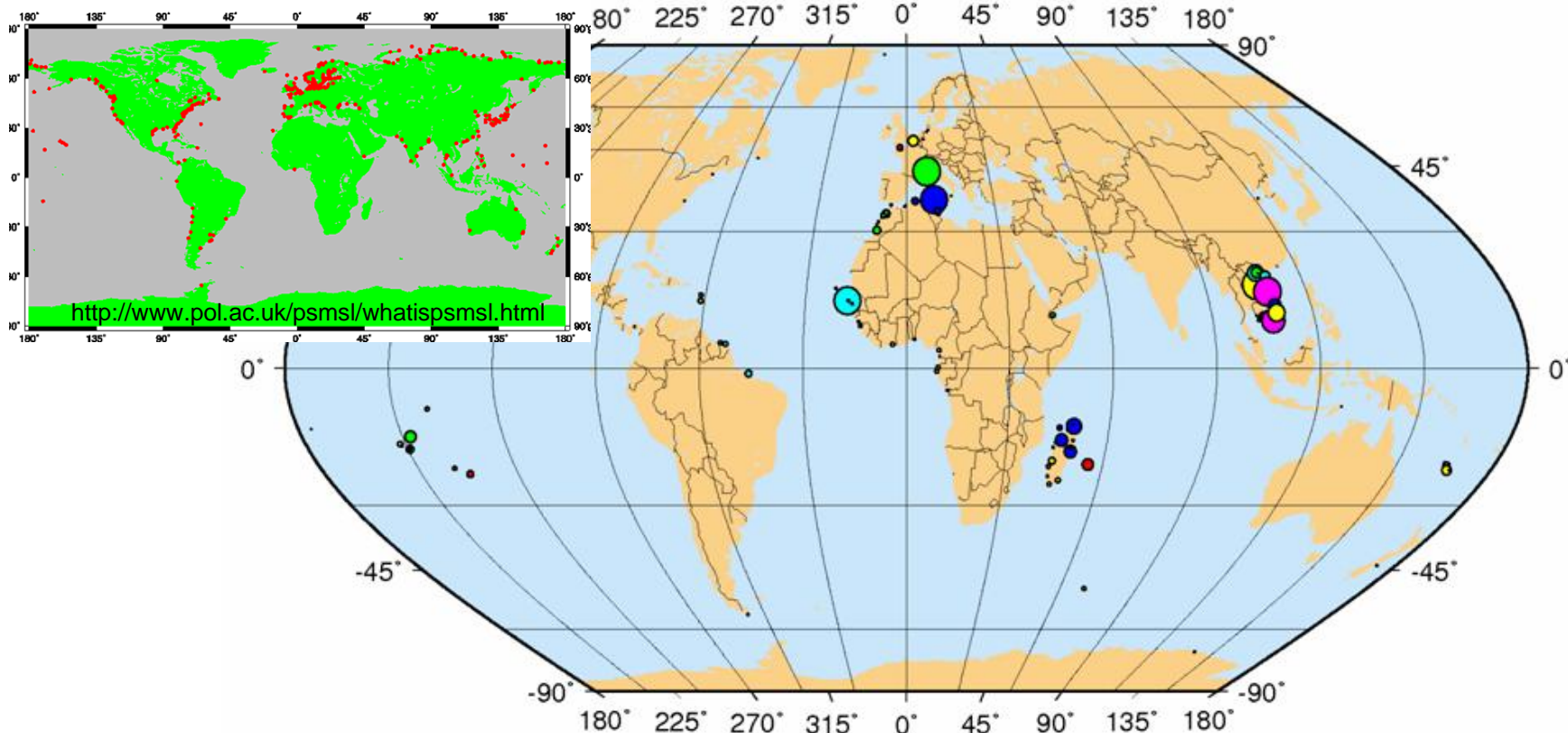
Long-term sea level trends at Brest (France)

- PhD 2008, Nicolas Pouvreau
- Study of 300 years of tide gauge data in Brest
- To construct a (very) long time series to study long-term sea level evolution and trends



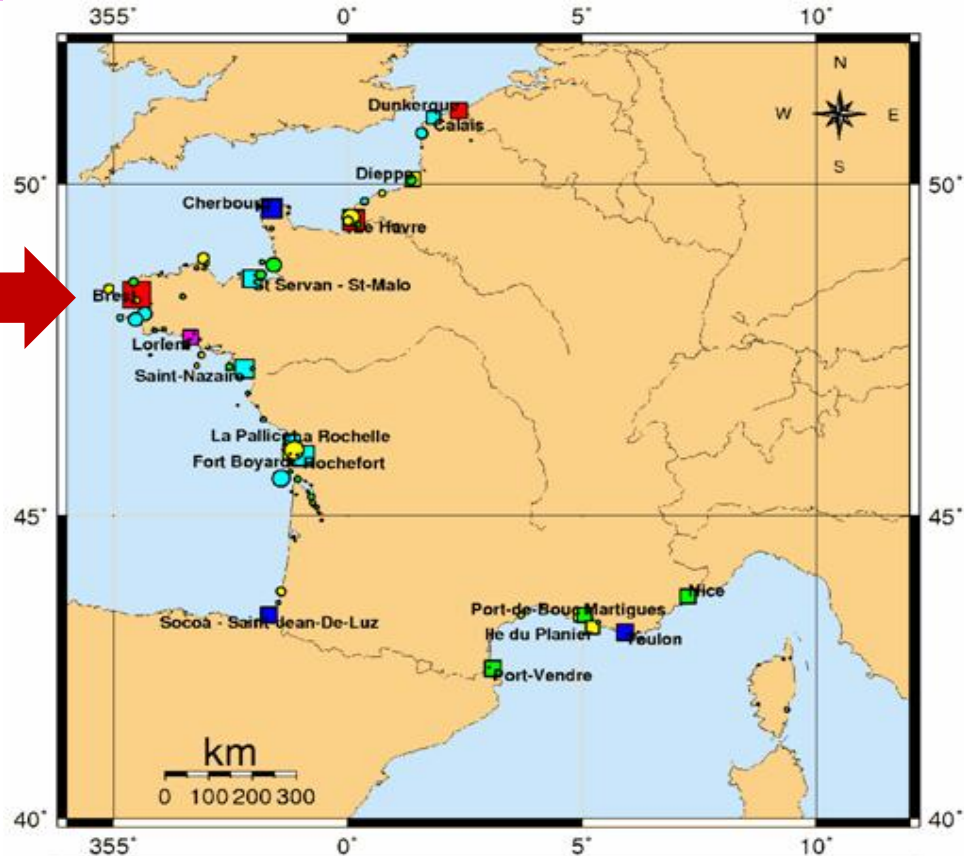
Inventory of tidal gauge data

PSMSL Stations with at least 40 Years of RLR Data



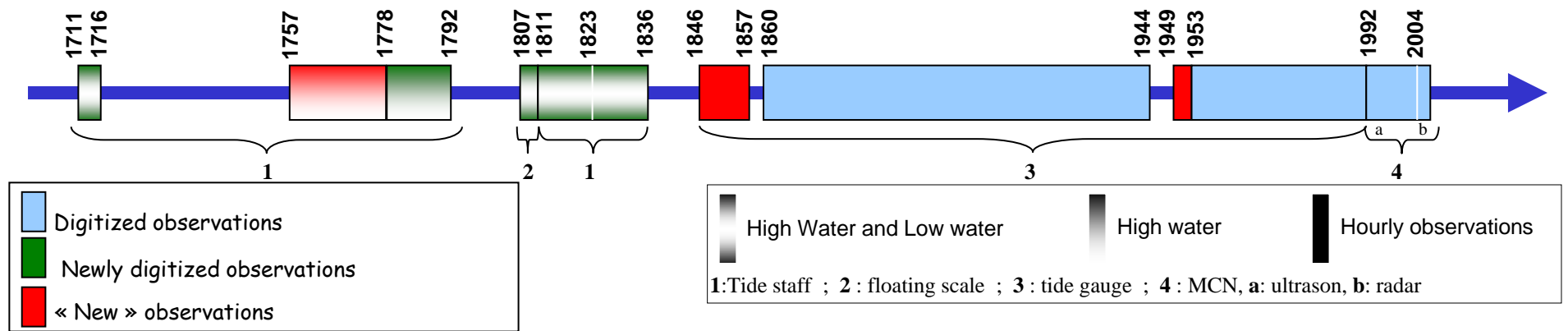
Localisation des mesures historiques du niveau de la mer					
● 000-020	● 021-040	● 041-060	● 061-080	● 081-100	● sup. à 100
<i>Couleurs déterminant la durée totale des observations (en années)</i>					
○ 005ans	○ 010ans	○ 015ans	○ 020ans	○ 025ans	○ 030ans
<i>Taille des cercles proportionnelle au nombre d'années effectives</i>					

Inventory of tidal gauge data in France

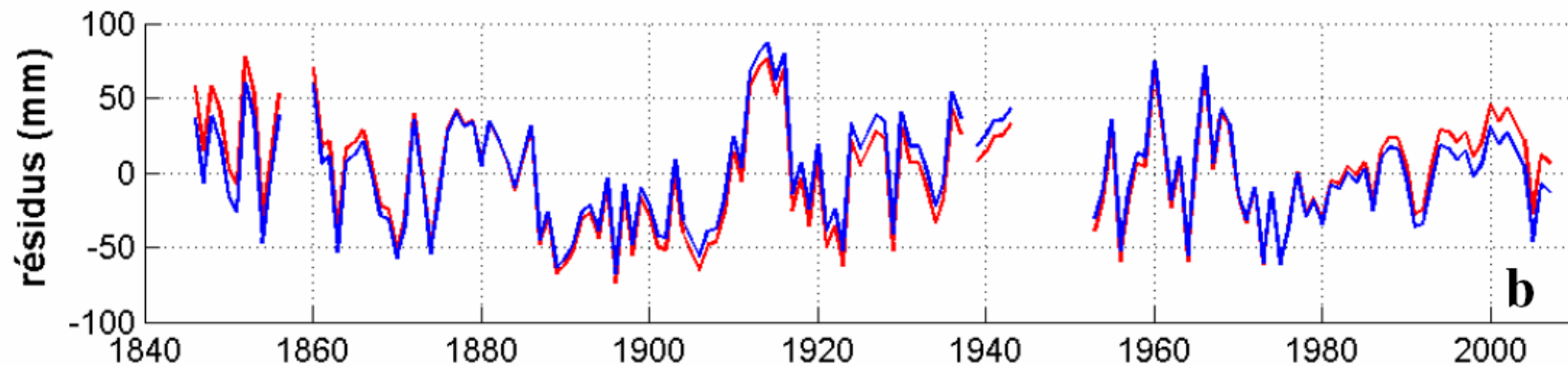
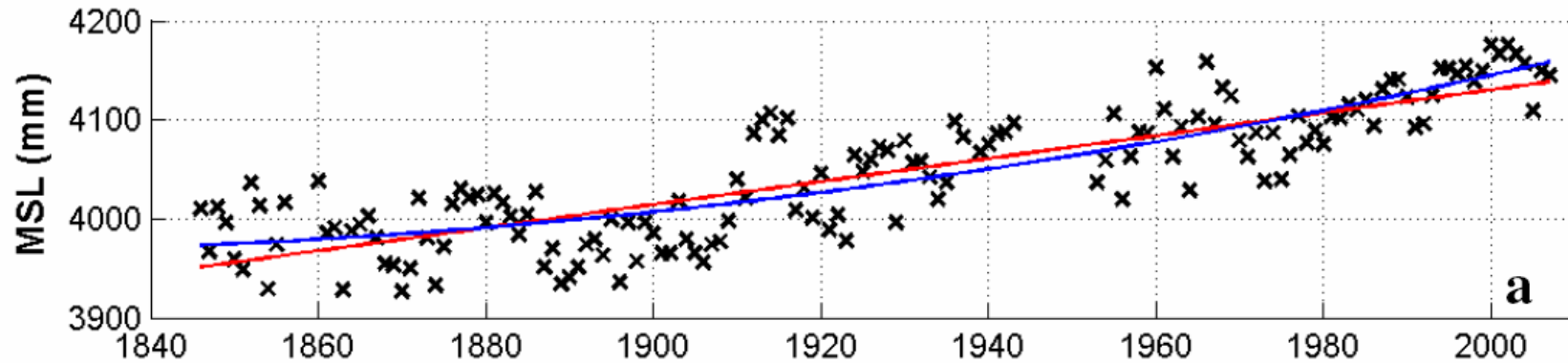


Localisation des mesures historiques du niveau de la mer					
◊ 000-050	◊ 051-100	◊ 101-150	◊ 151-200	◊ 201-250	◊ sup. à 250
<i>Couleurs déterminant la durée totale des observations (en années)</i>					
○ 03ans	○ 06ans	○ 09ans	○ 12ans	○ 15ans	
<i>Taille des cercles proportionnelle au nombre d'années effectives (jusqu'à 15ans)</i>					
□ 025ans	□ 075ans	□ 125ans	□ 175ans	□ 225ans	
<i>Taille des carrés proportionnelle au nombre d'années effectives (supérieur à 15ans)</i>					

Nature and type of observations : HW, LW, hourly heights

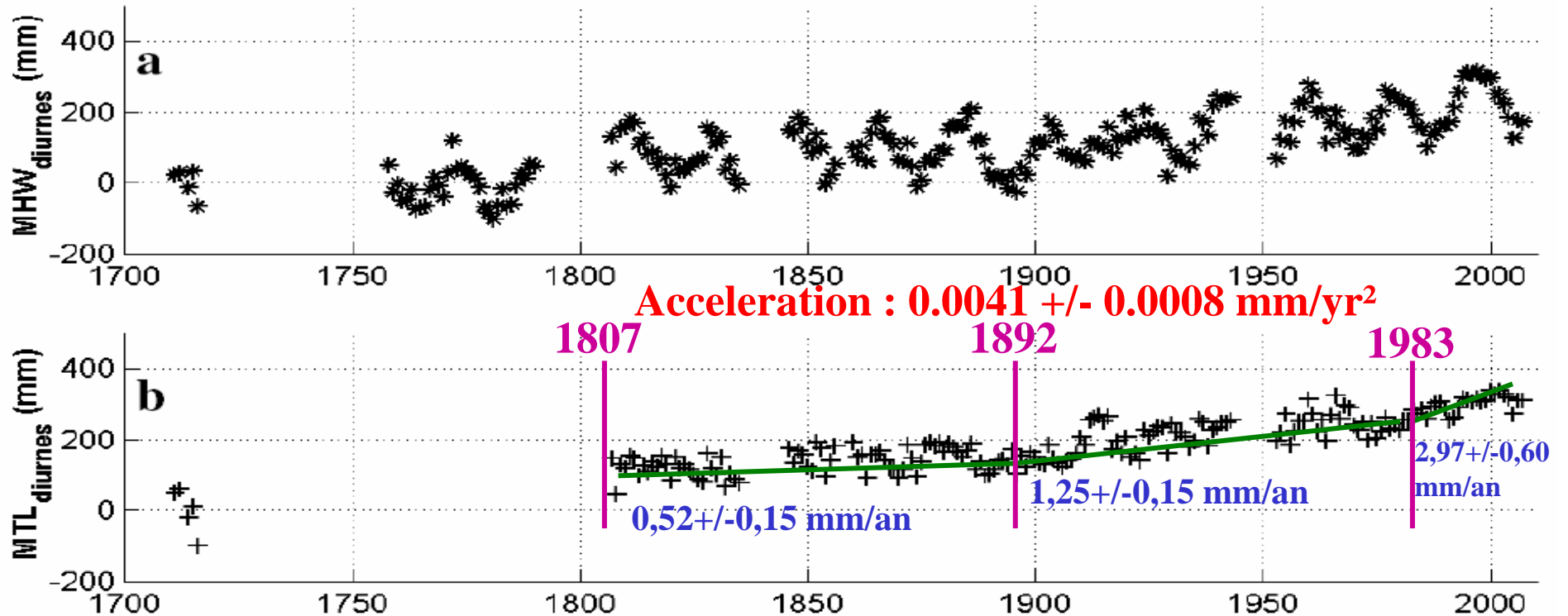


Mean Sea Level Rise



— linear regression
— quadratic regression

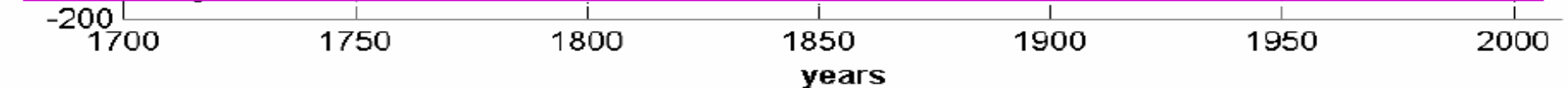
Trends and acceleration



Period 1846-1985 :

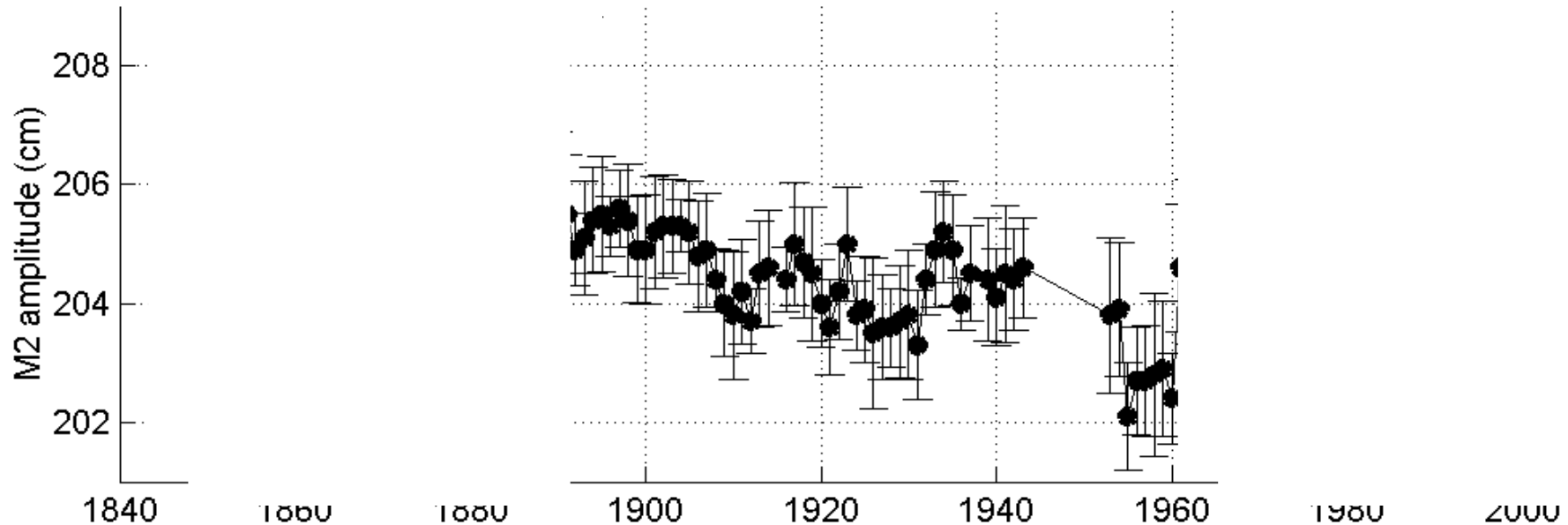
Liverpool : $0.0044 \pm 0.0011 \text{ mm/year}^2$ [Woodworth (1990)]

Brest : $0.0040 \pm 0.0021 \text{ mm/year}^2$

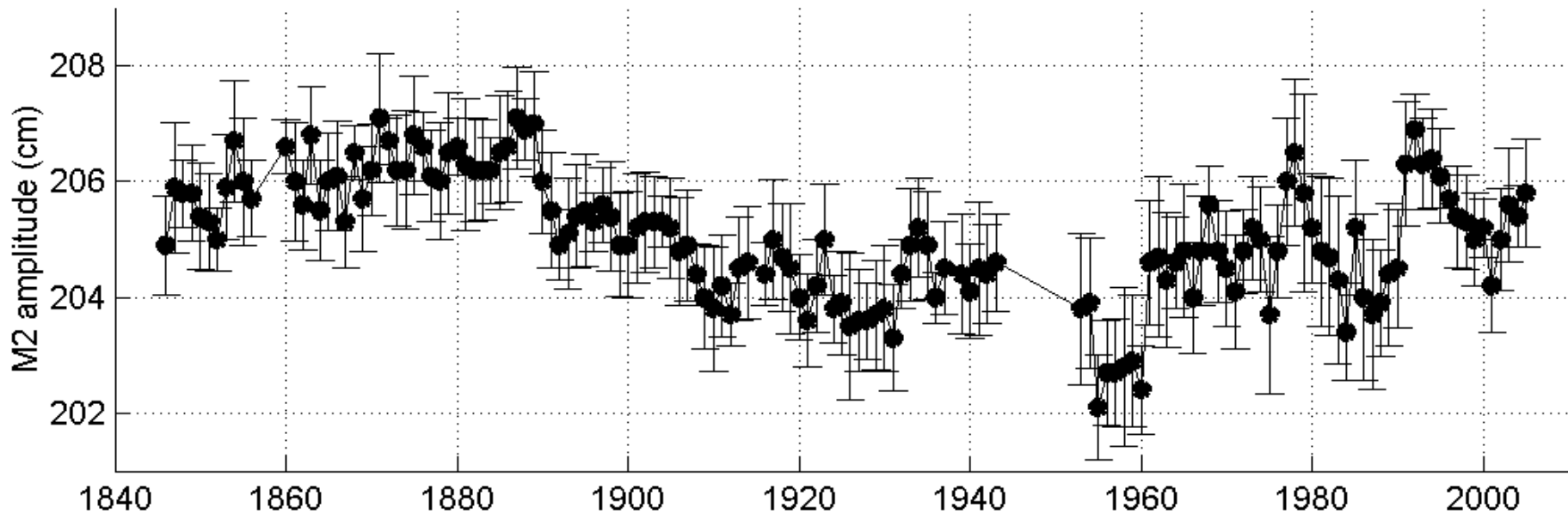


Evolution of M2 at Brest between 1846 and 2005

Cartwright (1972) : significant and irregular decreasing of M2 (1% per century)

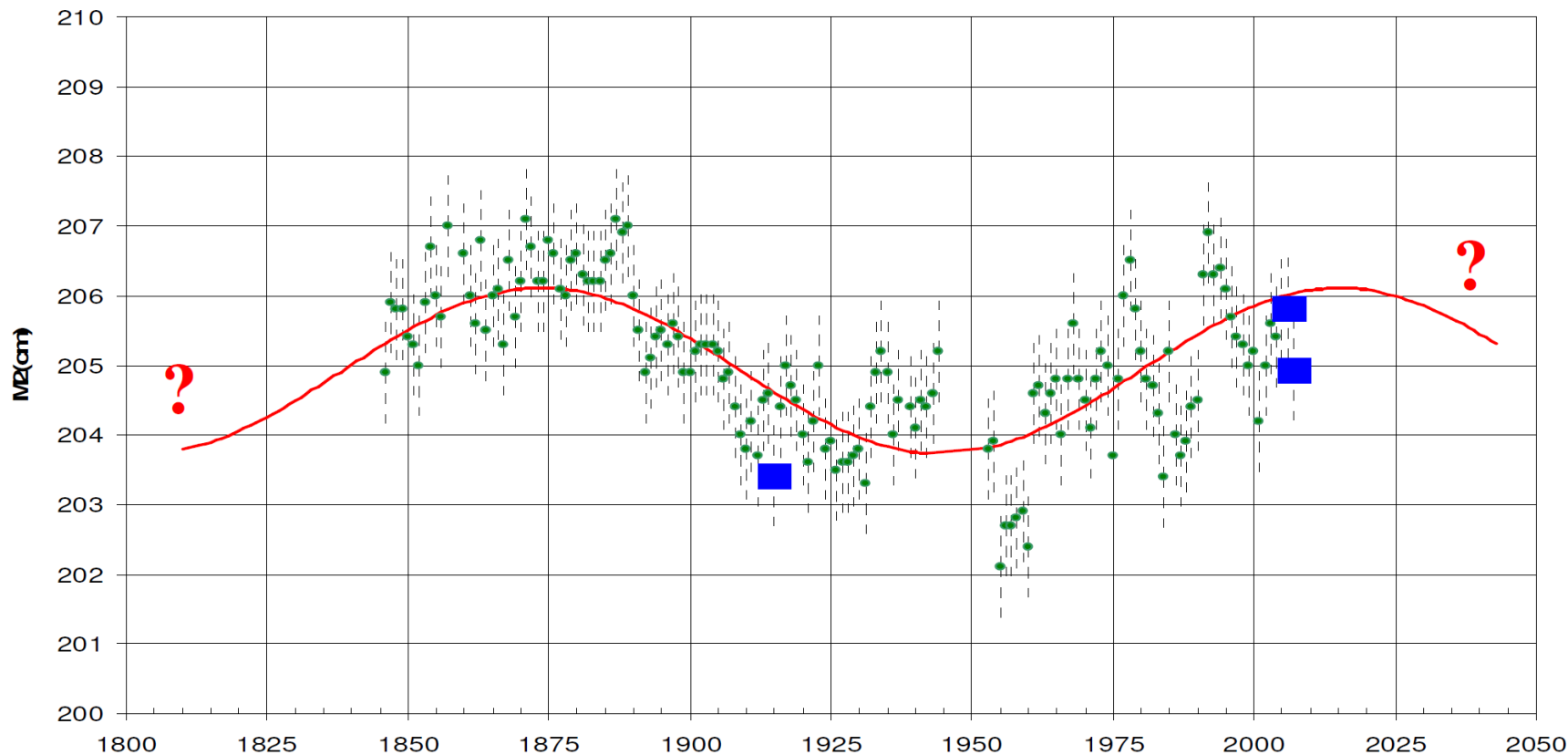


Evolution of M2 at Brest between 1846 and 2005

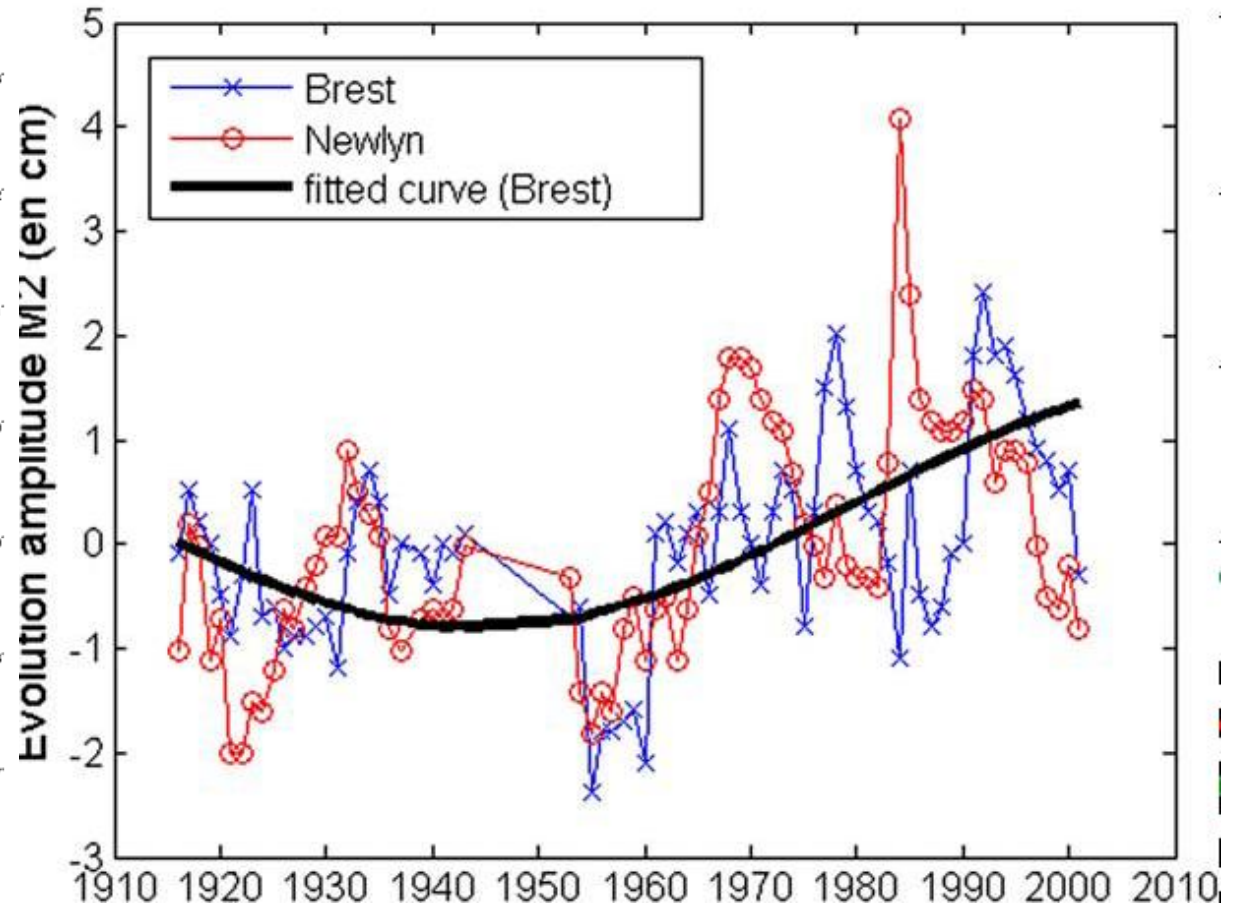
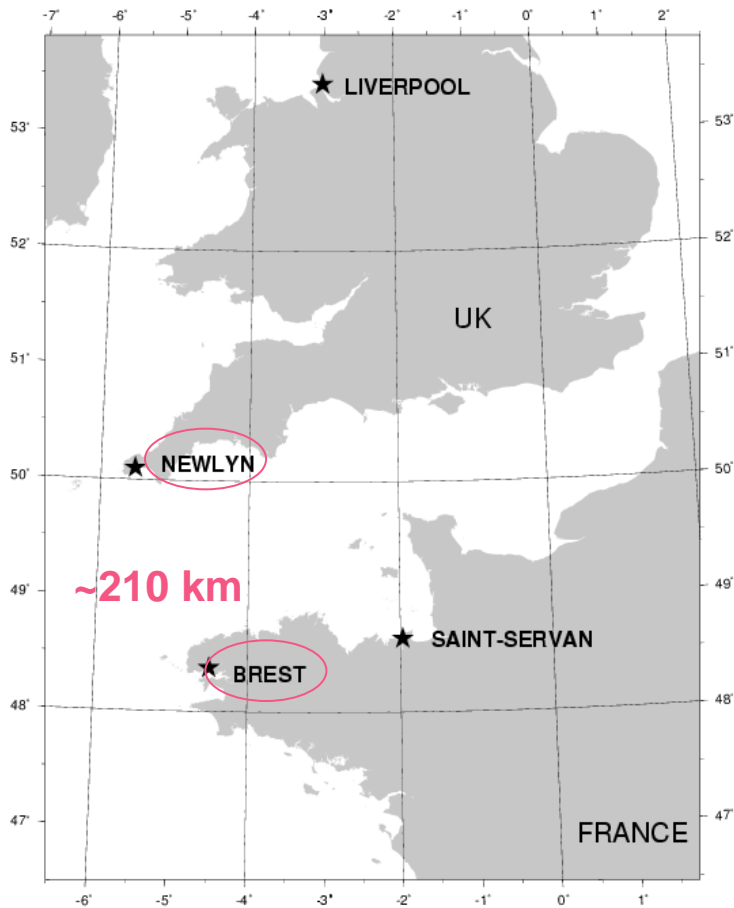


If periodical phenomena : - Period : 141 ± 5 years
- Amplitude : $1,1 \pm 1$ cm

Evolution of M2 at Brest between 1846 and 2005



Evolution of M2 at Brest and Newlyn



Thank you for your attention

