



Fig. 1

Dates	Beta Analytic		Age		Cal 2 sig
	192292	AMS	910 ± 40 BP	900 ± 40 BP	Cal AD 1030 to 1230
	192293	AMS	840 ± 40 BP	830 ± 40 BP	Cal AD 1166 to 1270
	192297	AMS	1040 ± 40 BP	1000 ± 40 BP	Cal AD 980 to 1060 Cal AD 1080 to 1150
	192296	AMS	1000 ± 40 BP	950 ± 40 BP	Cal AD 1010 to 1180
	192299	AMS	950 ± 40 BP	880 ± 40 BP	Cal AD 1030 to 1250

Tab. 1

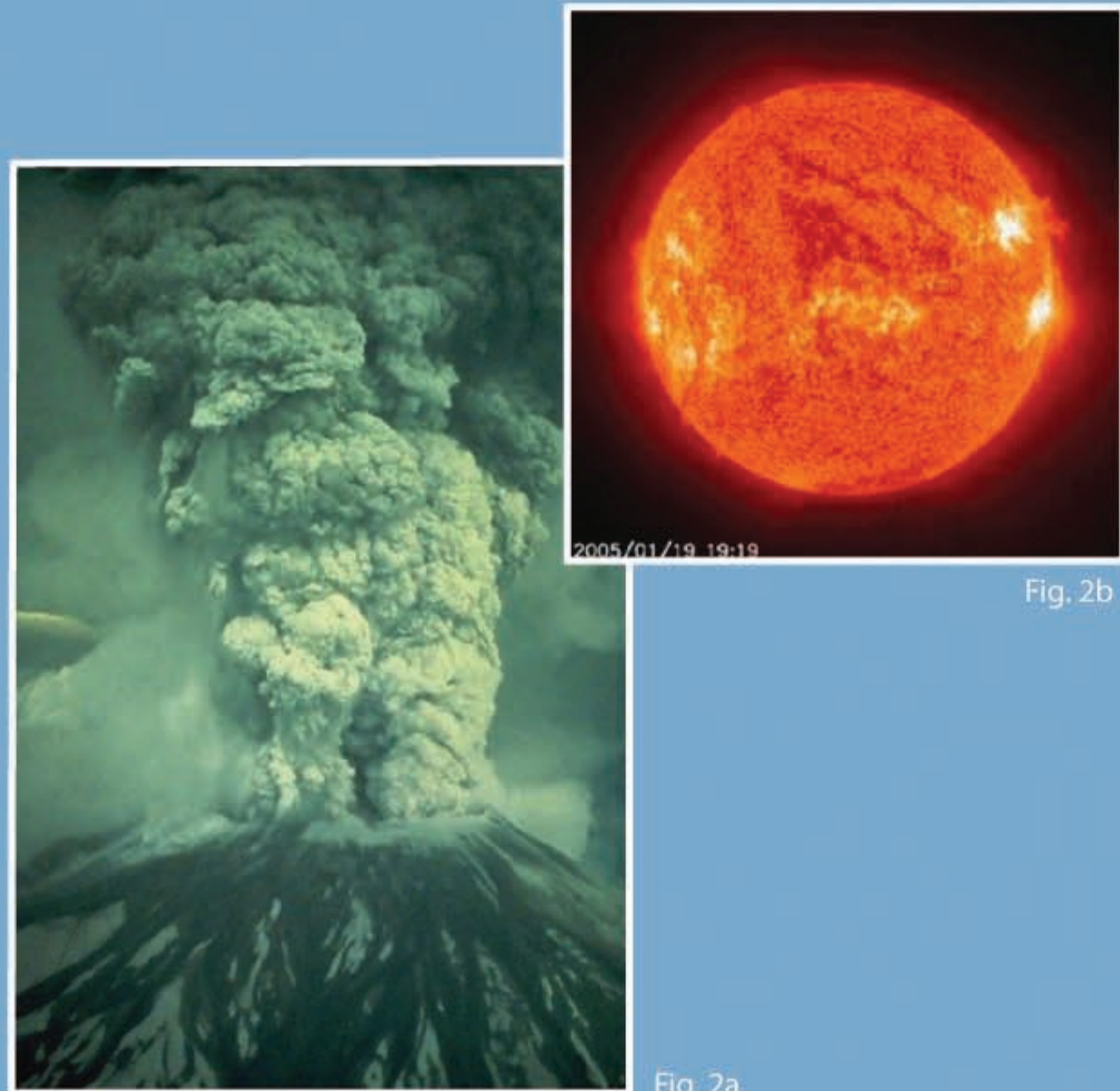


Fig. 2b

Fig. 2a

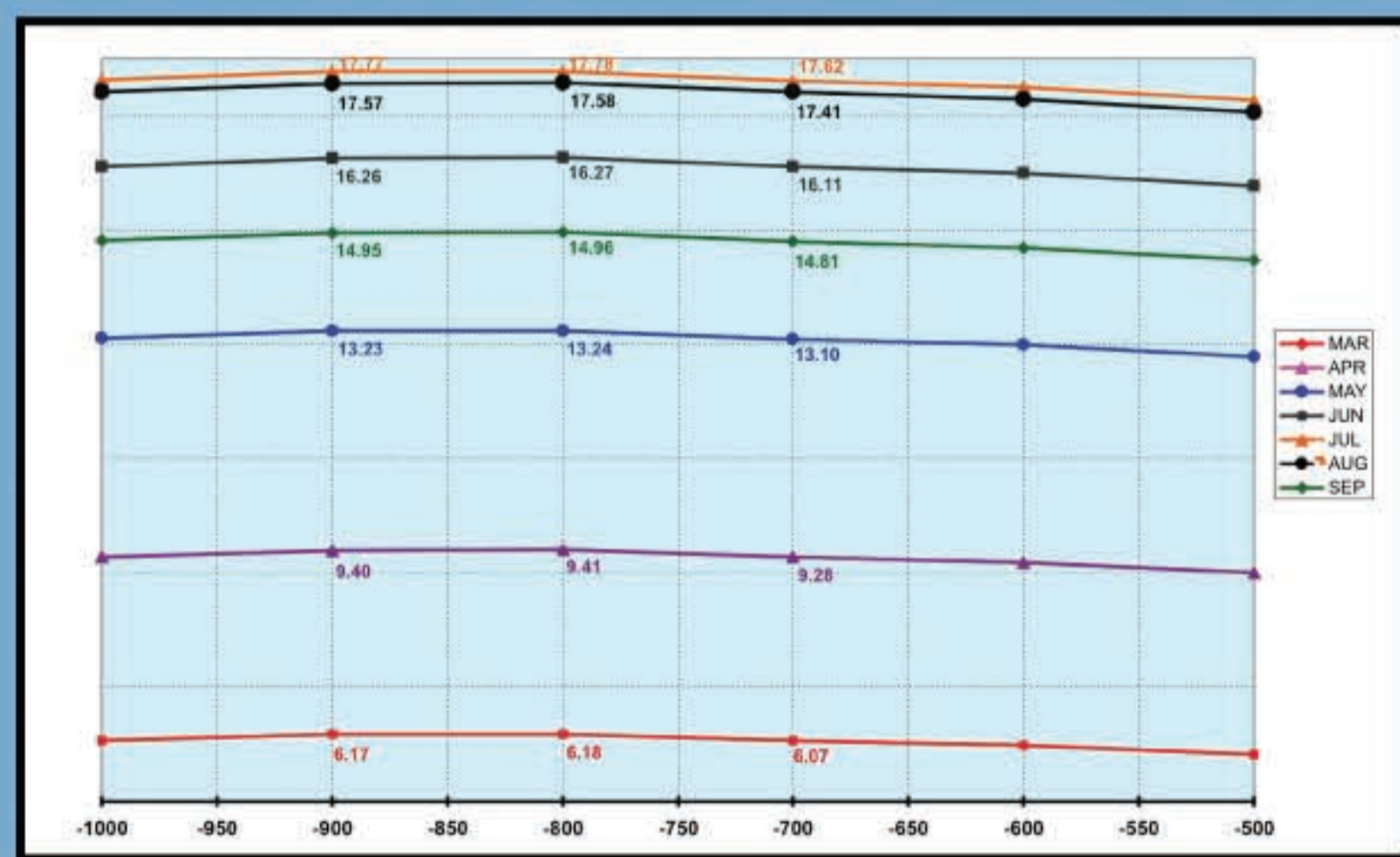


Fig. 3

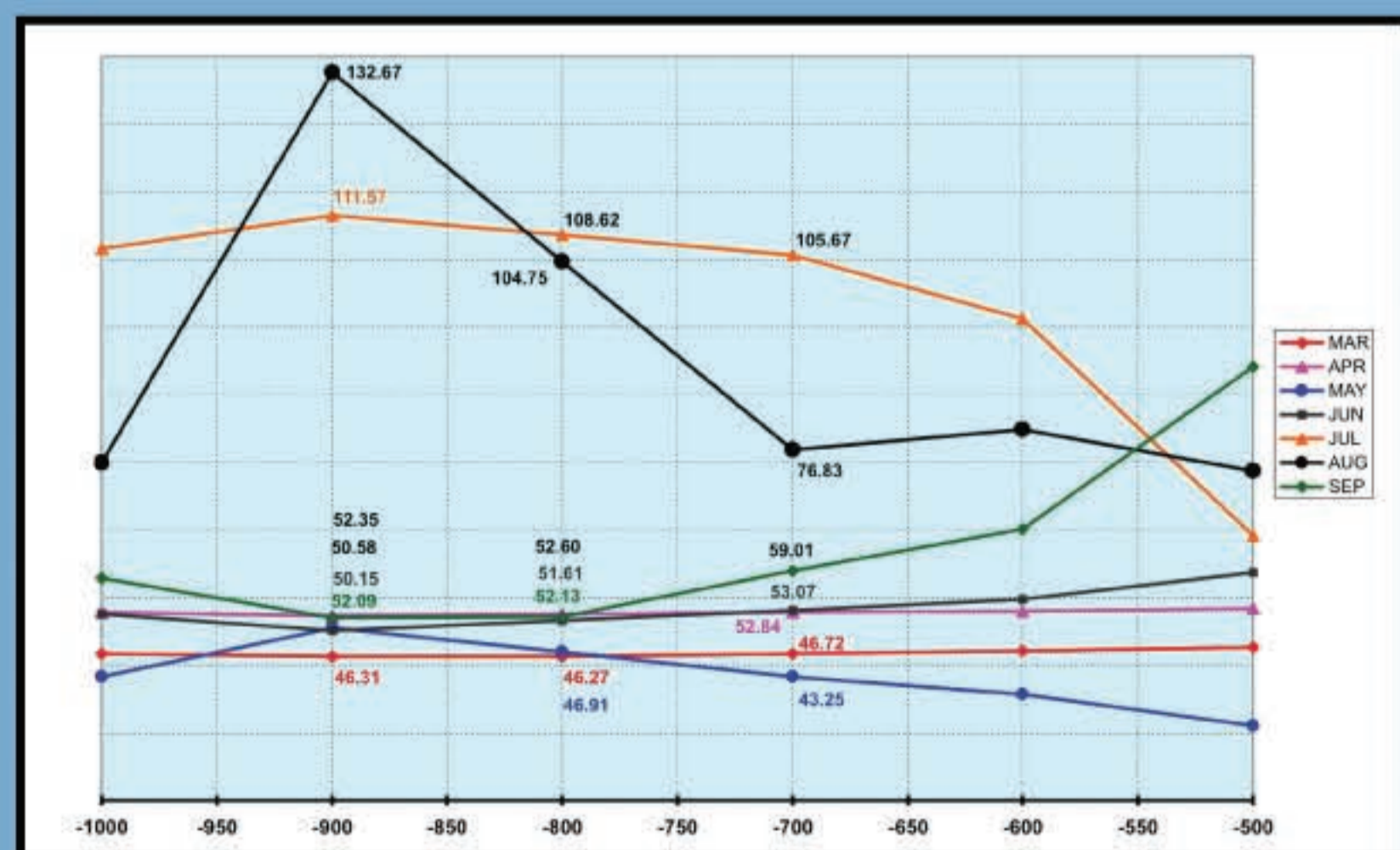


Fig. 4

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An archaeoclimatological working hypothesis for Brussel's

The question

The study of dark colored horizons proposes a Brussels's landscape dominated by cultivated surfaces (Fig. 1). We have evidences for wheat (*Triticum* sp.), barley (*Hordeum* sp.) and oat (*Avena* sp.).

According to the dates (Tab. 1), new surfaces were put into cultivation one century before the erection of the 1st city wall.

Which process lies behind this archaeological record? And could the climate be one of its components? To gain some insights in this question, Bryson's archaeoclimatological model has been applied to the Brussels early medieval period.

The archaeoclimatological model

Fig 2. a & b

The archaeoclimatological model is a Macrophysical Climate Model (MCM) predicated on

- the Milankovitch periodicities (or orbital forcing)
- the Variations in atmospheric transparencies (or Volcanic index)
- the Earth's Albedo
- Observed modern climate (or Synoptic climatology)

It provides site specific calculations of temperatures and precipitations at a 100 year resolution throughout the entire Holocene.

A Brussels climate reconstruction between the 11th and 13th centuries AD

For the time period under consideration, the model:

- calculates small changes in temperatures, including increases in temperature during Medieval Warm Period optimum (Fig. 3)
- proposes changes in the precipitations pattern during the growing cycle of the spring crops (Fig. 4), early springs and summer becoming possibly drier and early autumn wetter

The agronomical potentialities of the proposed climate

According to the calculated temperatures and precipitations,

- the conditions for the spring crops cultivation are almost optimum
- the spring crop growth cycle might extended from March/April (seedling) till July/August (harvesting)

A working hypothesis

The development of extensive agricultural practices might not have been a response to a climatological change. It should be more related to a management by a broader social component. And indeed, so far all the evidences for extensive agricultural practices are in the vicinity of religious and political authorities.

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