

Investigating historical severe storms in Austria (1604, 1807) and England (1638)

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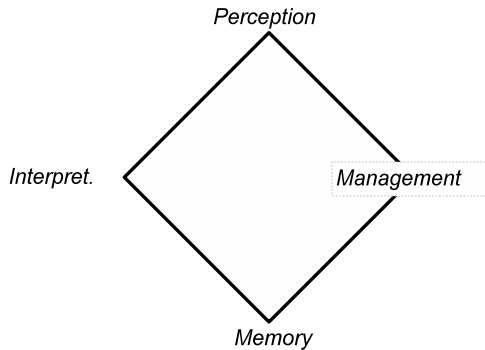
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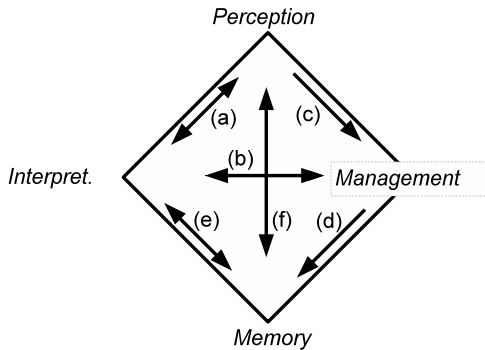
Outline

- ▶ Method
- ▶ Case studies
 - ▶ Severe storm in Vienna 1604
 - ▶ Severe storm in Vienna 1807
 - ▶ Severe storm in Widecombe-in-the-Moor in Dartmoor 1638
- ▶ Concluding remarks

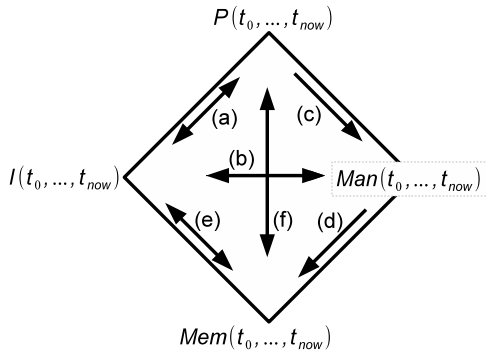
Cultural-historical tool (Hauer & Pfeifer, 2011)



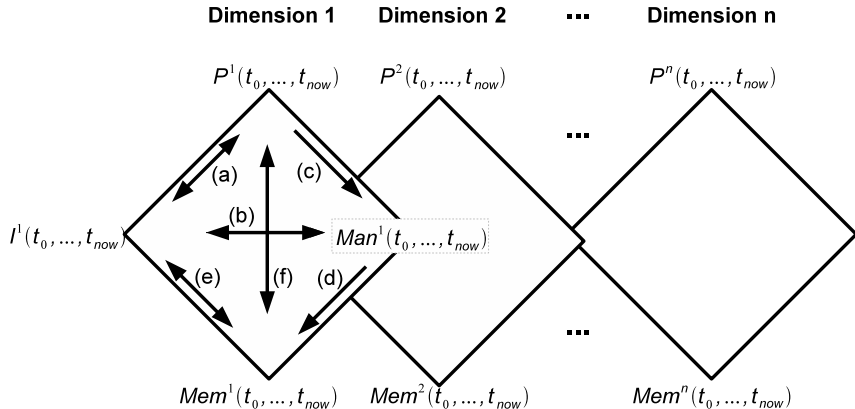
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The severe storm in Vienna (1604) (Feb.4; Bay. StB. M.; Res. 4, P.o.germ. 232, 38)

Perception

- ▶ Occurred suddenly
- ▶ Damages
 - ▶ small and large roofs
 - ▶ destroyed chimneys
 - ▶ people were injured by flying bricks
 - ▶ copper roof of the imperial castle was destroyed
 - ▶ three carriages with horses and men were lifted from a bridge into the air and thrown into the river Danube

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Memory

- ▶ No indication

The severe storm in Vienna (1807) (Sep.30-Oct.1; Wr. Ztg. Nr. 80/1807, p. 4647f)

Ein plötzlicher Sturm, der in der Nacht vom 30. Sept. auf den 1. Okt. aus Nordwestwest hervorbrach, und am Morgen zwischen 3 und 6 Uhr in seiner furchtbarsten Gewalt wüthete, setzte Wien und die umliegenden Gegenden in die bangsten Besorgnisse. Die Kuppel des Thurms der Augustinerkirche wurde herabgeschleudert in die Gasse [...] Tausende von Fenstern wurden eingedrückt, und viele Gärten in den Vorstädten beynahe ganz verwüdet [...] Die stärksten Bäume wurden mit der Wurzel aus der Erde gerissen, oder zersplittert [...] Erst am Abend des folgenden Tages legte sich der Wind ganz [...] das Reaumurische Thermometer zeigte 9 Grad über dem Eispuncte.

A sudden storm originated northwest in the night from September 30 to October 1 and raged most violently over Vienna and its surroundings between 3 and 6 o'clock in the morning. The dome of the tower of the Augustinerchurch was thrown down to the lane [...] Thousands of windows were broken and many gardens in the suburbs were almost totally desolated [...] The strongest trees were uprooted or splintered. The wind stopped only in the evening of the next day. [...] The Réaumur scale showed 9 degrees above the freezing point. ¹

¹9 degrees on the Réaumur scale correspond to 11.25 degrees Celsius.

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Management: Reparations were hindered as French troops occupied the imperial residence (Geschichte, 1824, p. 312).

Two Widecombe tracts of 1638 (Oct.21)

A TRVE RELATION OF THOSE SAD

AND LAMENTABLE
Accidents, which happened in
and about the Parish Church of
Withycombe in the *Dartmoores*,

in *Devonshire*, on Sunday
the 21. of *October* last,
1638.

PSAL. 46. 8.

*Come, behold the workes of the Lord, what desolations
hee hath made in the earth.*



LONDON,

Printed by G.M. for R. Harford, and are to be sold at his
shop in *Queenes-head-alley* in *Pater-noster-row* at the
guilt Bible, 1638.

A SECOND AND MOST EXACT RELATION OF THOSE SAD

AND LAMENTABLE
Accidents, which happened in
and about the Parish Church of
Wydecombe neere the *Dartmoores*,

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The severe storm in Widecombe-in-the-Moor (1638)

Perception

- ▶ Occurred during holy mass
- ▶ “presently filled with fire and smoke, the smell whereof was [...] like unto the sent of brimstone, some said they saw at first a great ball of fire come in at the window”
- ▶ Narrow damage traces
 - ▶ “Also one [...] sitting in his seate [...] had his head suddenly smitten against the wall, [...] but his sonne sitting in the same seate had no harme.”

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 - ▶ “Also one [...] sitting in his seate [...] had his head suddenly smitten against the wall, [...] but his sonne sitting in the same seate had no harme.”
- ▶ Possible **tornado** indicators
 - ▶ “[...] there were some Seats in the Body of the Church turned upside downe”
 - ▶ “And one man going out at the Chancell doore his Dogg running out before him was whirled about towards the doore and fell downe starke dead: at the sight whereof his Master stepped backe within the doore, and GOD preserved him alive”
 - ▶ “about [...] eight boyes sitting about the rayles of the Communion Table, it tooke them up from the seartes and threw them all on heapes within the rayles, and not one of them hurt”

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- ▶ Thunder and lightning are produced by the power of god
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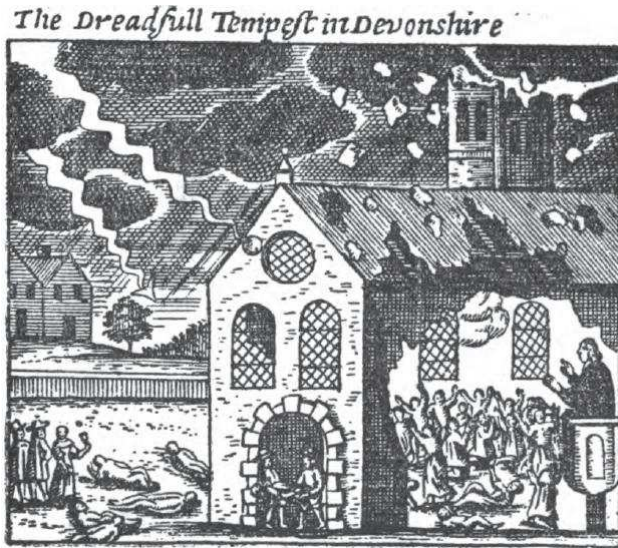
Management

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Memory:

- ▶ Commemorative plaques in the church, verses attributed to schoolmaster Hill

Anonymous woodcut (Burton, 1684, p. 54–57)



Anonymous (Rowe, 1905)



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Concluding remarks

- ▶ Cultural historical work aims to reconstruct coherent pictures of the past, focussing on the people
- ▶ Rediscovering historical severe storms helps to improve frequency estimates (Wegener, 1917; Dotzek, 2003)
- ▶ Adopting the Enhanced Fujita scale for historical tornadoes
 - ▶ Historical sources may provide damage indicators
 - ▶ Natural criteria remain the same, but artificial ones (buildings, etc.) need to be adapted

References I

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