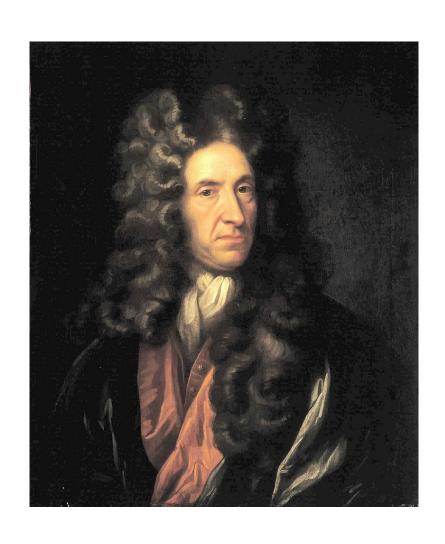


#### Daniel Defoe (1660-1731) and the Storm of 1703



- -writer, merchant, and political propagandist
- -his fictional account of a castaway, *Robinson Crusoe* (1719), is often credited with being one of the first novels in English
- -he was imprisoned for both bankruptcy and religious and political libel (critical of the Church of England and the ruling Tory party)
- -just after his release from prison in 1703, the November hurricane hit England
- -he immediately set to work documenting the storm and speculating on its causes, work that became his 1704 book *The Storm*

#### **Storm of 1703**

- November 1703 hurricane that is still considered to be the biggest natural disaster in English history
- -for 7 days, the storm and winds destroyed houses and churches, drowned tens of thousands of pasture animals
- -in East Anglia, hundreds of windmills caught fire apparently due to the friction of their "wildly spinning sails."
- -the storm decimated the Royal Navy, the bulk of which was anchored off the southern coast near Goodwin Sands: more than 300 ships and 8,000 sailors were lost.
- -historians estimate that approximately 15,000 people died as a result of the storm and subsequent flooding



'The Great STORM, November 26th, 1703 wherein Rear-admiral Beaumont was lost in the Goodwin Sands' (National Maritime Museum, Greenwich).

#### Defoe's Archive, or Three Ways of Looking at a Storm

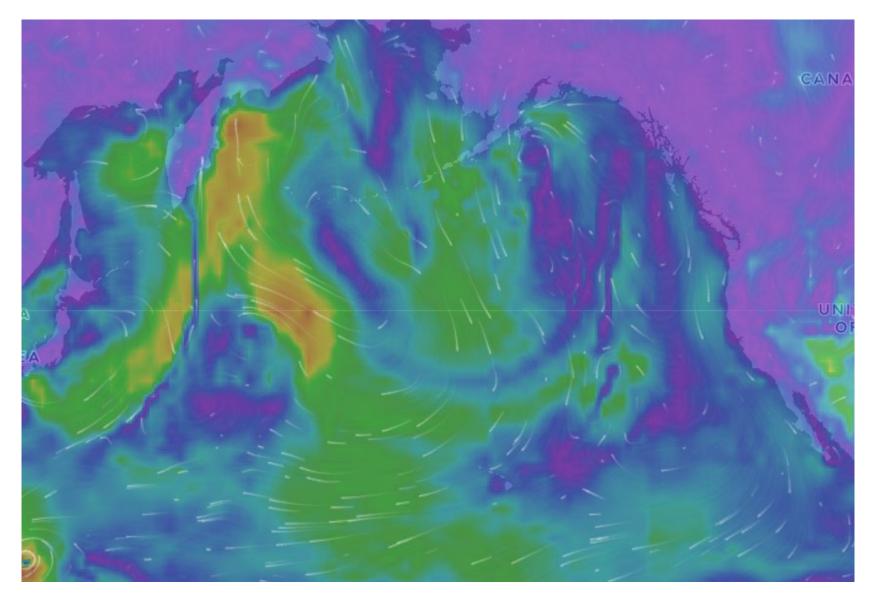
Defoe's three writings on the 1703 storm:

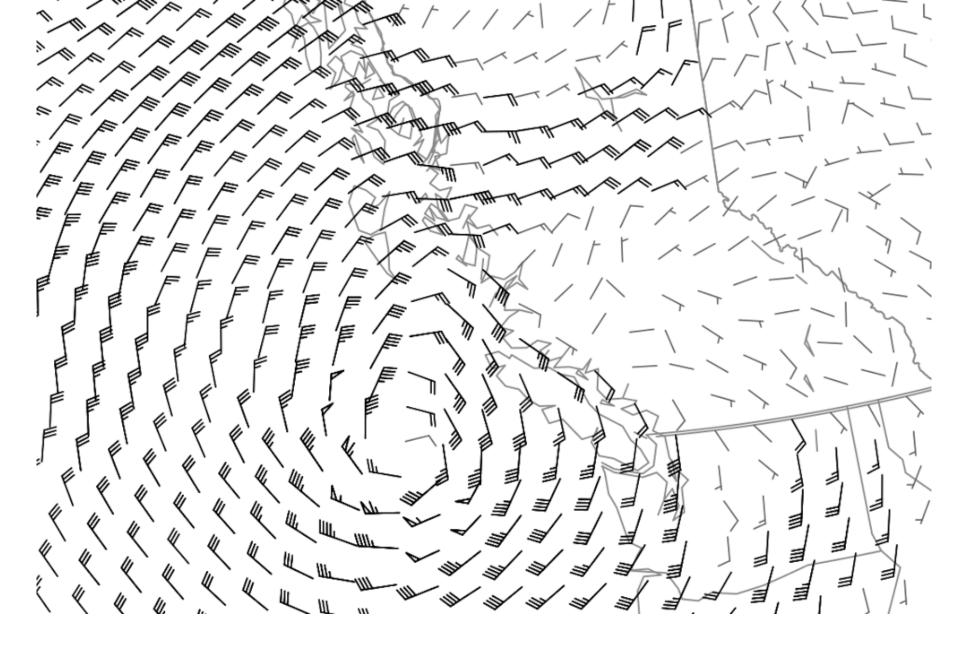
- 1. The Storm (July 1704)
- -genre: journalism and science reporting
- -combines description of the causes of storms generally, his own experience in the storm, and solicited eye-witness accounts of the 1703 storm, and his own journalistic commentary on them
- -just after the storm, Defoe placed newspaper ads asking readers to submit personal accounts
- -he edited about 60 of them into this book which also includes his own commentaries plus scientific matter on the cause of storms
- -described as one of the first modern journalistic accounts of a natural disaster
- -it remains a resource for historians and climatologists
- 2. The Lay-Man's Sermon upon the Late Storm (February 1704)
- -genre: polemical treatise
- -attributes the cause of the storm to the civil and religious divisions in English society
- 3. "An Essay on the Late Storm" (August 1704)
- -genre: 345-line poem
- -like The lay-Man's Sermon, a work of political and religious criticism

#### What Caused the Storm? Defoe's Natural Philosophy

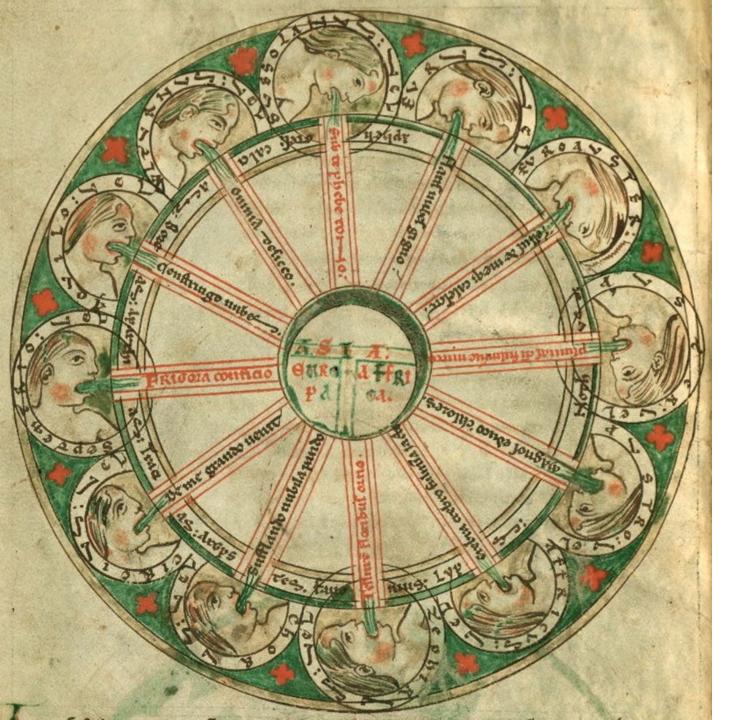
- -what happens when we can't find an immediate physical cause for a natural occurrence?
- -p. 11: "Nature plainly refers us beyond her Self, to the Mighty Hand of Infinite Power, the Author of Nature, and Original of all Causes."
- -p. 16: "Other things are left to the Common Discoveries of Natural Inquiry, but this [i.e the cause of winds] is a thing he holds in his own Hand, and has conceal'd it from the Search of the most Diligent and Piercing Understanding: This is further confirm'd by the Words of our Saviour, *The Wind blows where it listeth, and thou.hearest the Sound thereof, but knowest not whence it cometh*; 'tis plainly express' d to signify that the Causes of the Wind are not equally discover'd by Natural Enquiry as the rest of Nature is."
- -Defoe cites Ralph Bohun, A Discourse Concerning the Origine and Properties of Wind (1671): storms result when deep in the earth "Subterraneall Storms break prison, to disturb the peace of the Atmosphere, and raise mutinyes, and commotions in the whole body of the Air"
  - -why anthropomorphize wind?

#### How do we make visible the invisible forces of nature?





Synoptic wind chart with wind barbs. Northeast Pacific Ocean, British Columbia, and Washington state.

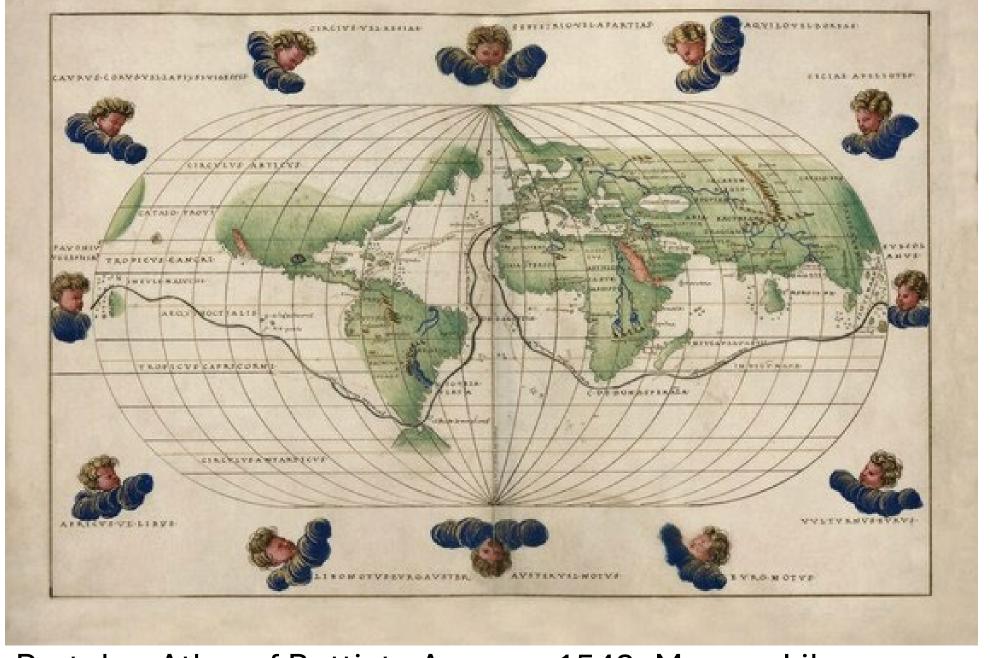


# How did premoderns imagine these invisible natural forces like wind?

-one way was to give them a human body-anthropomorphism of weather

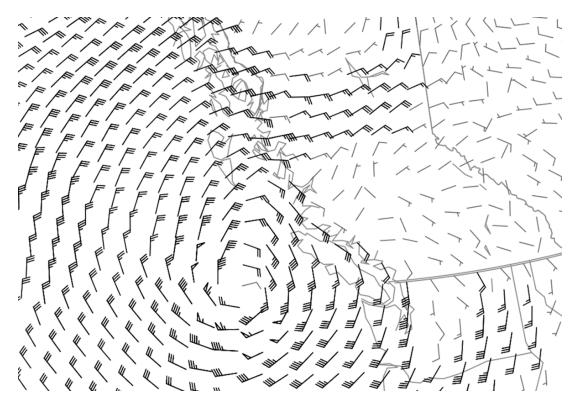
Zephirus: "I adorn the earth with flowers" (Tellurem floribus orno).

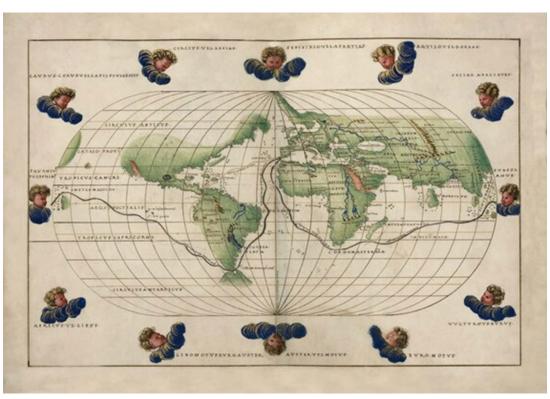
Twelve Aristotelian winds from a treatise of scientific and cosmographical items. Baltimore, Walters Art Museum, W.73, f. 1v (England, ca. late 12th-century).



Portolan Atlas of Battista Agnese, 1542. Morgan Library.

#### Abstraction vs. Anthropomorphism?







Aeolipile ("Jack of Hilton"), height 304 mm. Oxford, Ashmolean Museum AN2013.1 (ca. 1300).

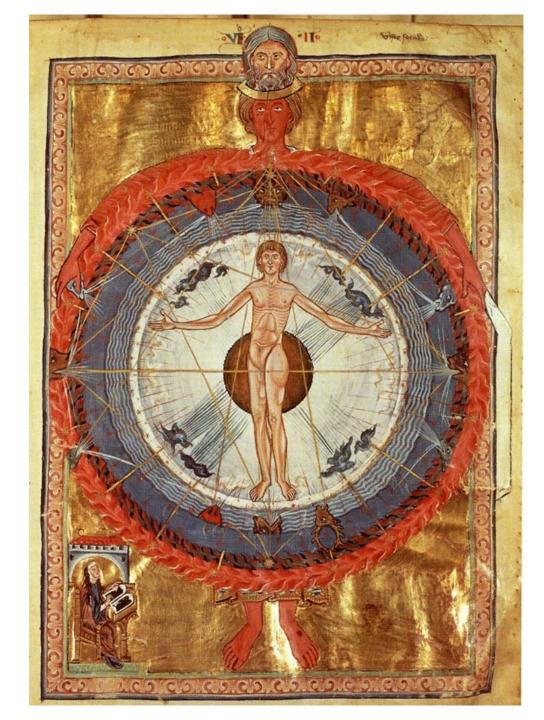
- -The aeolipile was known in philosophical circles from late antiquity; yet it only acquired an anthropomorphic form in the later medieval period.
- -Albertus Magnus describes its operations, noting that it was commonly called a sufflator since "it is customarily given the shape of a blowing man."
- -For Albertus, the device explained how water was expelled from the ground during earthquakes, a phenomena thought to be caused by a dry windy exhalation within the earth itself.
- -In these anthropomorphic instruments, the human breath was used to simulate the winds that move the sublunary world
- -why do this? not because they were naïve or primitive but because this embodiment lent concrete form to urgent philosophical problems: How to model and hence understand the invisible forces that shape our world?

Basingstoke aeolipile, height 27 cm. London, Society of Antiquaries (Hampshire, ca. 1400?).

### How does weather like winds affect humans?

As the wind preserves with its moderating power all life in the world, this breath gives also to human beings a changing existence because of the state of our humors. If we human beings, whose natural disposition may correspond to that breath of the world, inhale this altered air and exhale it once again so that the soul can receive this breath and carry it even further into the body's interior, then the humors of our organism are altered. Often such humors may bring us ... either illness or good health.

-Hildegard of Bingen, Liber Divinorum Operum 3:1





Influence of the winds on the seasons and human activity. Hildegard of Bingen, *Liber Divinorum Operum*. Lucca, Biblioteca Governativa, Ms. 1942, f. 38r (ca. 1230).

Corrected: Author correction

### Regional ambient temperature is associated with human personality

Wenqi Wei<sup>1,2</sup>, Jackson G. Lu<sup>3</sup>, Adam D. Galinsky<sup>3</sup>, Han Wu<sup>1</sup>, Samuel D. Gosling<sup>4,5</sup>, Peter J. Rentfrow<sup>6</sup>, Wenjie Yuan<sup>1</sup>, Qi Zhang<sup>7</sup>, Yongyu Guo<sup>8</sup>, Ming Zhang<sup>9</sup>, Wenjing Gui<sup>1</sup>, Xiao-Yi Guo<sup>1</sup>, Jeff Potter<sup>10</sup>, Jian Wang<sup>11</sup>, Bingtan Li<sup>1</sup>, Xiaojie Li<sup>1</sup>, Yang-Mei Han<sup>1</sup>, Meizhen Lv<sup>1</sup>, Xiang-Qing Guo<sup>1</sup>, Yera Choe<sup>1</sup>, Weipeng Lin<sup>12</sup>, Kun Yu<sup>13</sup>, Qiyu Bai<sup>1</sup>, Zhe Shang<sup>14</sup>, Ying Han<sup>1</sup> and Lei Wang<sup>1\*</sup>

Human personality traits differ across geographical regions 1-5. However, it remains unclear what generates these geographical personality differences. Because humans constantly experience and react to ambient temperature, we propose that temperature is a crucial environmental factor that is associated with individuals' habitual behavioural patterns and, therefore, with fundamental dimensions of personality. To test the relationship between ambient temperature and personality, we conducted two large-scale studies in two geographically large yet culturally distinct countries: China and the United States. Using data from 59 Chinese cities (N = 5,587), multilevel analyses and machine learning analyses revealed that compared with individuals who grew up in regions with less clement temperatures, individuals who grew up in regions with more clement temperatures (that is, closer to 22 °C) scored higher on personality factors related to socialization and stability (agreeableness, conscientiousness, and emotional stability) and personal growth and plasticity (extraversion and openness to experience). These relationships between temperature clemency and personality factors were replicated in a larger dataset of 12,499 ZIP-code level locations (the lowest geographical level feasible) in the United States (N=1,660,638). Taken together, our findings provide a perspective on how and why personalities vary across geographical regions beyond past theories (subsistence style theory, selective migration theory and pathogen prevalence theory). As climate change continues across the world, we may also observe concomitant changes in human personality.

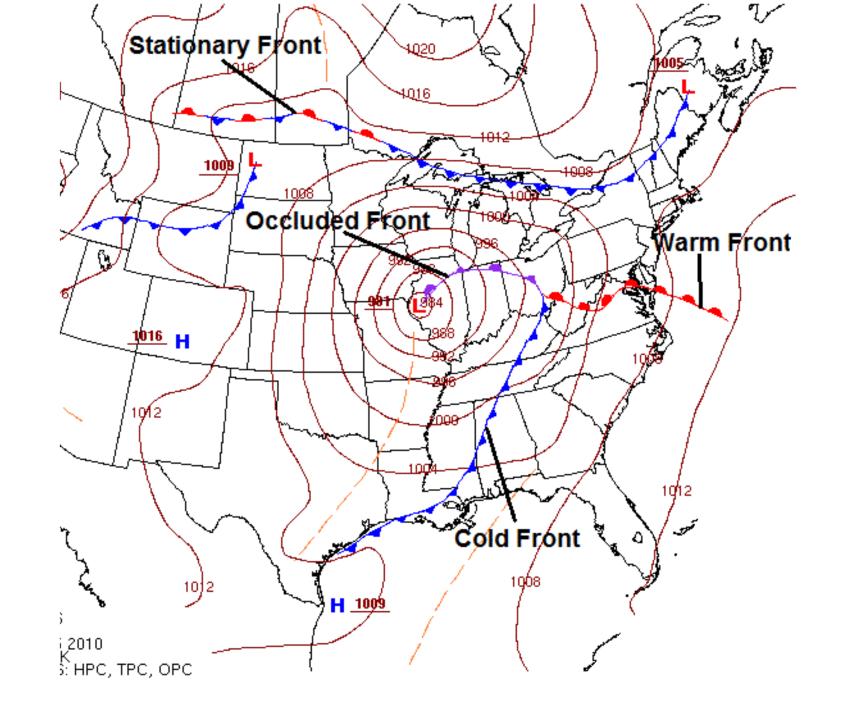
A wealth of evidence suggests that human personality traits differ across geographical regions<sup>1-5</sup>. Such geographical variation in personality has been shown to predict a broad array of psychological, political, economic and health outcomes<sup>3,45</sup>. However, one important question remains: What generates these geographical differences in personality?

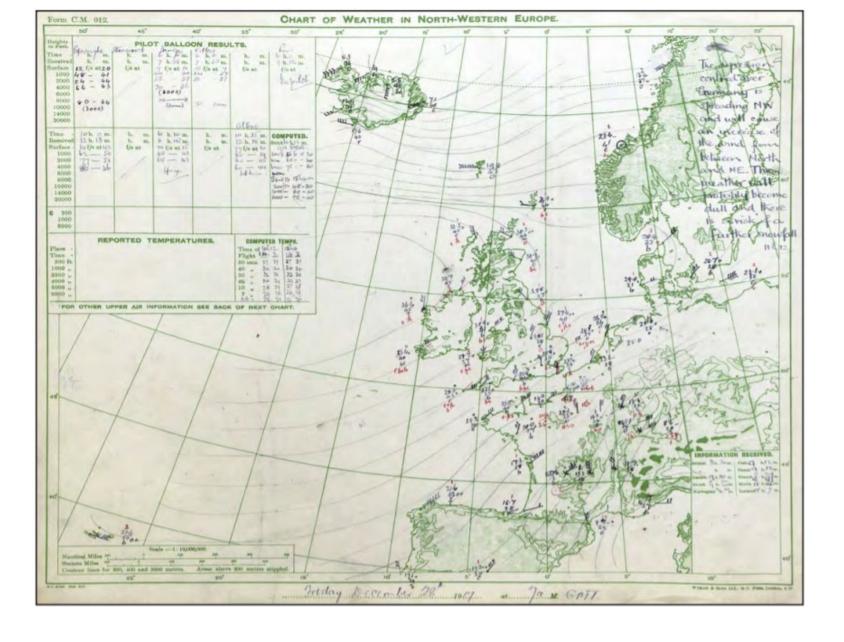
Humans constantly experience and react to ambient temperature. Because temperature varies markedly across the world, it is conceivable that temperature shapes the fundamental dimensions of personality by affecting the habitual behaviours that underlie personality traits. Temperature may shape personality directly by influencing individual behaviours (for example, exploring outdoors versus staying indoors), and less directly by influencing collective activities (for example, agriculture) that guide individual behaviours?. Consequently, regions with different ambient temperatures may result in different patterns of personality traits.

Personality is defined as "the interactive aggregate of personal characteristics that influence an individual's response to the environment". The hundreds of personality traits used to describe humans are largely captured by five broad dimensions, often called humans are largely captured by five broad dimensions, often called the Big Five: agreeableness, conscientiousness, emotional stability, extraversion, and openness to experience". These five personality factors can be further aggregated into two higher-order factors: 'Alpha' (agreeableness, conscientiousness, and emotional stability), which represents a socialization and stability factor, and 'Beta' (extraversion and openness to experience), which represents a personal growth and plasticity factor.

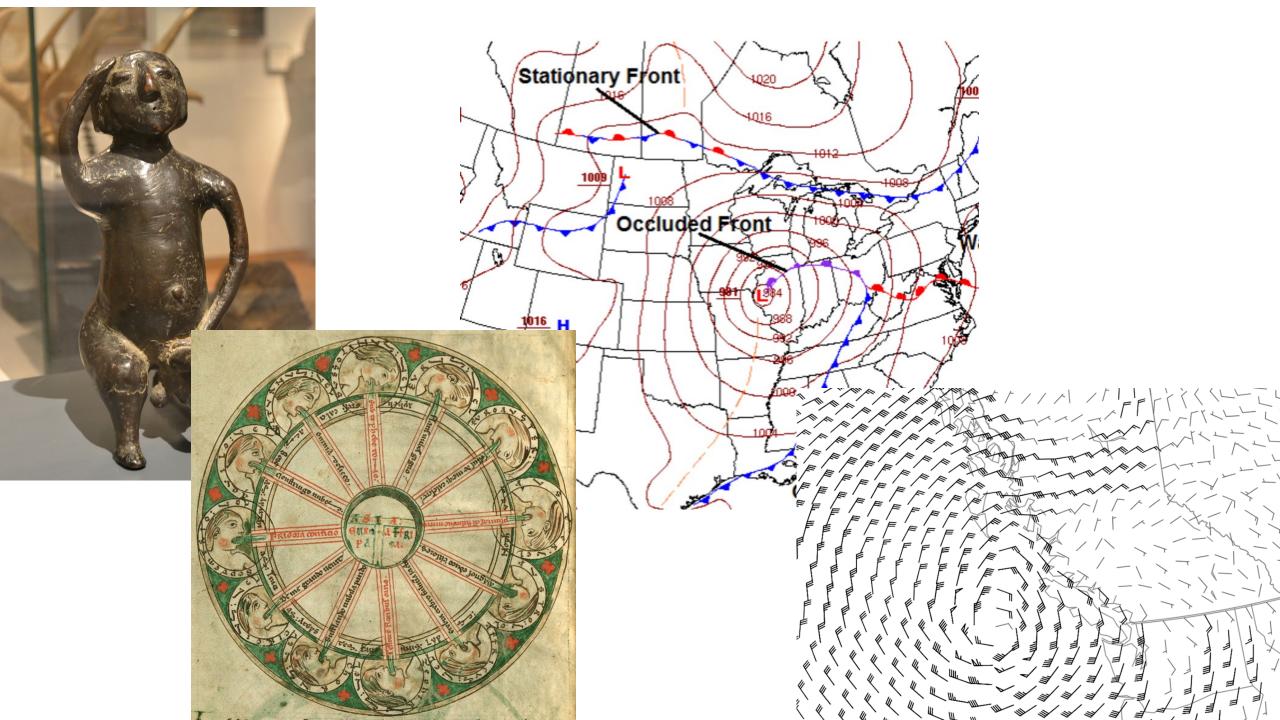
We propose that ambient temperature clemency is a key factor that relates to personality. This proposition is rooted in the fact that, as a warm-blooded species, humans have the existential need for thermal comfort<sup>12-15</sup>. Clement (that is, mild) temperatures encourage individuals to explore the outside environment, where both social interactions and new experiences abound; by contrast, when the ambient temperature is either too hot or too cold, individuals are less likely to go outside (for example, to meet up with friends, or to try new activities)<sup>16</sup>. This perspective is consistent with attachment theories, which state that individuals are more likely to explore their environments when they feel psychologically secure <sup>17,18</sup>.

Based on this reasoning, we hypothesize that individuals who grow up in more clement temperatures will be higher on both the socialization factor (Alpha) and the personal growth factor (Beta). Regarding the socialization factor Alpha, research has found that personality traits develop partly through social interactions <sup>19,20</sup>. More clement temperatures facilitate social contact<sup>16</sup>, for which agreeableness, conscientiousness and emotional stability are important<sup>21</sup>. Moreover, clement temperatures have been shown to enhance





Synoptic wind chart for North-Western Europe, 28 December 1917.



## Defoe's *The Storm*: The invisible force of the winds known by their damage

In London: "The houses looked like Skeletons, and an universal Air of Horror seem'd to sit on the Countenances of the People" (63)

- -roof tiles blown off of every house and turned into lethal projectiles
- -toppled chimneys fallen that destroy the houses on to which they fall (21 deaths)
- -topped brick walls
- -lead sheet roofs "roll'd up like a Roll of Parchment"
- -trees blown down; he says he counted 17,000 himself in Kent (56)
- -the destruction of church spires and large weather vanes
- -Defoe documents the urban destruction vs the countryside of his correspondents

#### The cost in human life, particularly on ships

-more than 100 ships sank and 8,000 sailors dead

"It was a Sight full of terrible Particulars, to see a Ship of eighty Guns and about Six Hundred Men in that dismal Case; she had cut away all her Masts, the Men were all in the Confusions of Death and Despair; she had neither Anchor, nor Cable, nor Boat to help her; the Sea breaking over her in a terrible Manner, that sometimes she seem'd all under Water; and they knew, as well as we that saw her, that they drove by the Tempest directly for the Goodwin, where they could expect nothing but Destruction. The Cries of Men, and the firing their Guns, One by One, every Half Minute for Help, terrified us in such a Manner, that I think we were half dead with the Horror of it." (174)

Rates.	Ships.	Number of Men before the Storm.	Guns.	Commanders.	Places where lost.	
ourth —	- Reserve	258	54	John Anderson —	Yarmouth Roads	Her Captain, Purser, Master, Chyrsurgeon, Clerk and Sixteen Men were Ashoar, the rest drowned.
Third —	Northumberland Restoration ——	253 386	70 70	James Greenway Fleetwood Emes		All their Men lost.
	Sterling Castle —	349	70	John Johnson —	Goodwin Sands	Third Lieutenant, Chaplain, Cook Chyssurgeon's Mate; four Marine Captains, and sixty- two Men saved.
Fourth —	Mary	273	64	Rear Admiral Beaumont, Edward Hopson		Only one Man saved by Swimmin from Wreck to Wreck, and getting to the Sterling Castle; the Captain Ashoar, as also the Purser.

- -what is the relation of the narrative?
- -what is the effect of the table?
- -relation to how natural disasters are reported on today?

#### The ending of *The Storm*

One unhappy Accident I cannot omit, and which is brought us from good Hands, and happen'd in a Ship homeward bound from the West-Indies. The Ship was in the utmost Danger of Foundring; and when the Master saw all, as he thought, lost, his Masts gone, the Ship leaky, and expecting her every moment to sink under him, fill'd with Despair, he calls to him the Surgeon of the Ship, and by a fatal Contract, as soon made as hastily executed, they resolv'd to prevent the Death they fear'd by one more certain; and going into the Cabbin, they both shot themselves with their Pistols. It pleas'd God the Ship recover'd the Distress, was driven safe into —— and the Captain just liv'd to see the desperate Course he took might have been spar'd; the Surgeon died immediately. (180)

- -what is the moral of this story?
- -what is the effect of placing it at the end of the work of reporting?