

PICTORIAL SOURCES IN HISTORICAL CLIMATOLOGY

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Content

- Winter images from Little Ice Age
 - Dutch and Flemish paintings from the 17th century
 - How reliable are these paintings for climate reconstruction?
- Reconstructing glacier dynamics
 - Example: the Grindelwald glaciers
 - Glacier images in Euro-Climhist (www.euroclimhist.unibe.ch)
- Extraordinary winters mirrored by impressionistic painters
 - Combining paintings, newspapers and instrumental measurements
- (Reconstructing natural disasters)
 - Example: the ice flood of 1830 in Vienna
 - Documents of self-representation?

Popular images for literature dealing with Little Ice Age (LIA)



A Cultural History of
Climate

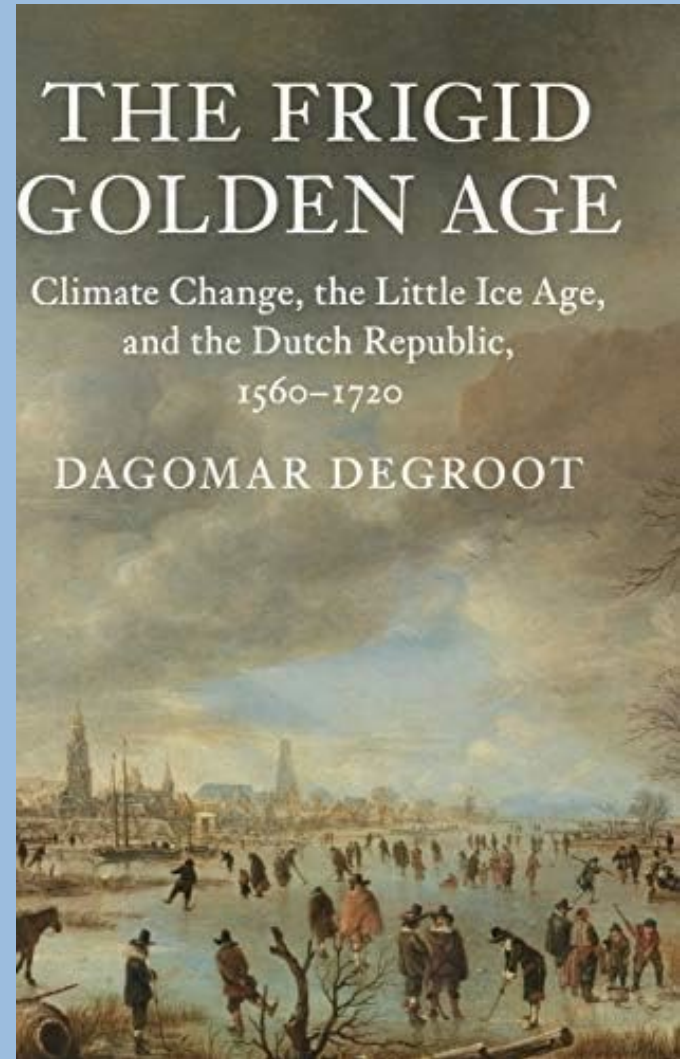
Wolfgang Behringer

Cambridge 2018

**THE FRIGID
GOLDEN AGE**

Climate Change, the Little Ice Age,
and the Dutch Republic,
1560–1720

DAGOMAR DEGROOT



London 2009

Pictorial sources for LIA (?)



Hendrick Avercamp: Winter in the Netherlands, oil on canvas, around 1605. Vienna: Kunsthistorisches Museum

Pictorial sources for LIA (?)



Hendrick Avercamp: Winter in the Netherlands, oil on canvas, around 1610. The Hague: Mauritshuis

Pictorial sources for LIA (?)



Frost fair London 1683, painting by an unknown artist

Historical climatology and art history

December 1879: an extremely cold and snowy winter (1)

Camille Pissarro: Les boulevards extérieurs. Effet de neiges, 1879, Paris, Musée Marmottan Monet



Historical climatology and art history

December 1879: an extremely cold and snowy winter (2)

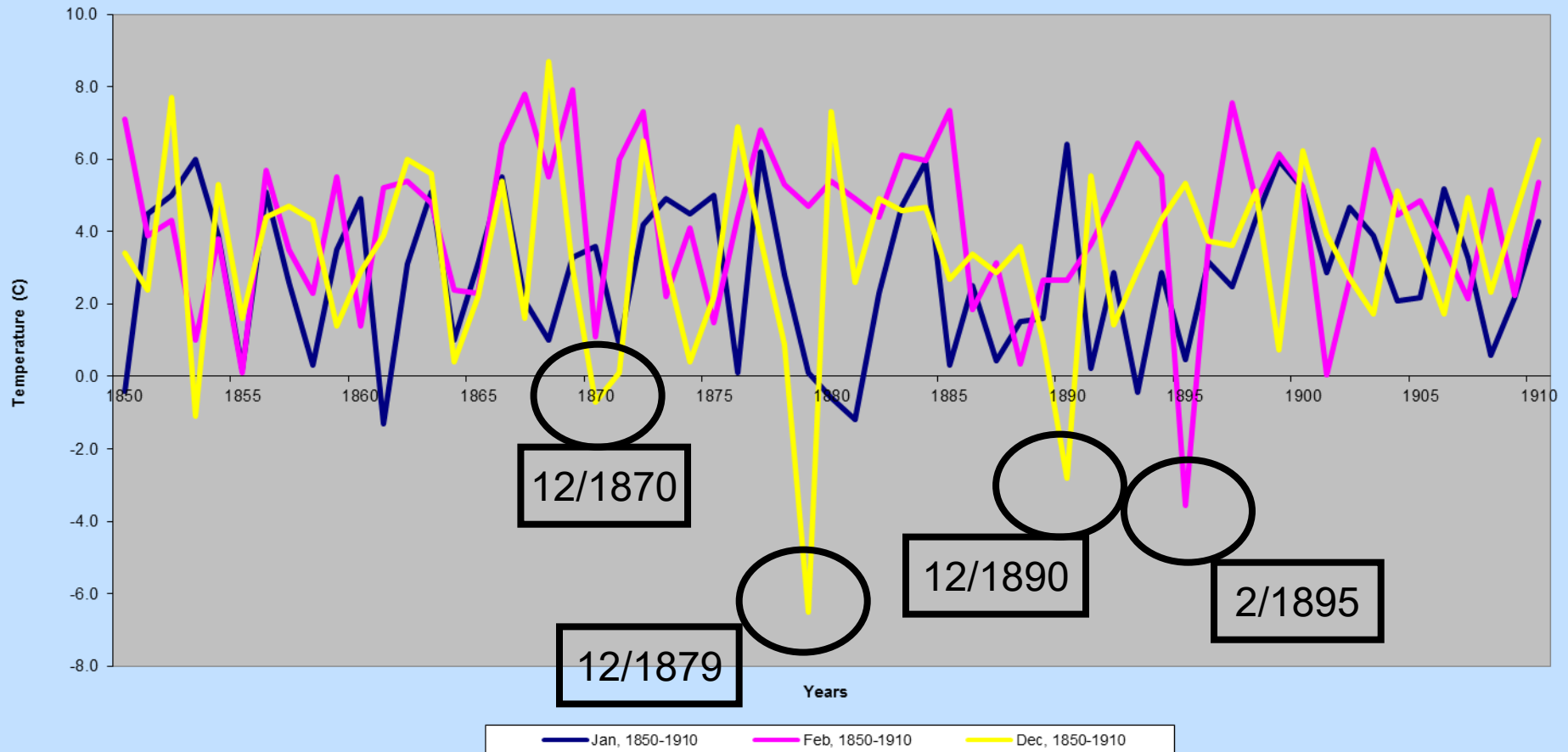
- 10 December, 1879: -23.9 °C in Paris
- More than 1 m of snow in the city centre



Historical climatology and art history

December 1879: an extremely cold and snowy winter (3)

Monthly mean temperatures in Paris, 1850-1910



Source: Rohr 2013

Iconographic analysis in historical climatology

- Historical development of glaciers
 - Scientific findings
 - Ice cores
 - Geological investigations of the terminal moraines
 - Pictorial sources (paintings, drawings, photos)
- Pictorial sources and their evaluation for historical glaciology
 - Sufficiently dense corpus on a specific glacier over a longer period of time
 - Serial iconography
- Challenges of glacier image analysis
 - Different types of images
 - Different perspectives
 - Distinctive landmarks necessary for comparison
 - Exact dating (year, season) often not ascertainable

Iconographic analysis of the Lower and Upper Grindelwald glacier

- Upper and Lower Grindelwald glacier best studied in terms of pictorial evidence
 - Extensive corpus of pictorial sources
 - Early tourism in Grindelwald directly beneath the glacier
- Life's work of the geographer Heinz J. Zumbühl (Bern) and his team
 - Zumbühl, Heinz J.: Die Schwankungen der Grindelwaldgletscher in den historischen Bild- und Schriftquellen des 12. bis 19. Jahrhunderts. Ein Beitrag zur Gletschergeschichte und Erforschung des Alpenraumes. Basel u.a. 1980.
 - Zumbühl, Heinz J.; Nussbaumer, Samuel; Holzhauser, Hanspeter; Wolf, Richard: Die Grindelwaldgletscher. Kunst und Wissenschaft. Bern 2016.
 - Natural scientific-glaciological and pictorial approach combined
 - Images integrated into the [Euro-Climhist](#) database

Iconographic analysis of the Lower and Upper Grindelwald glacier

Choosing a frame for comparison



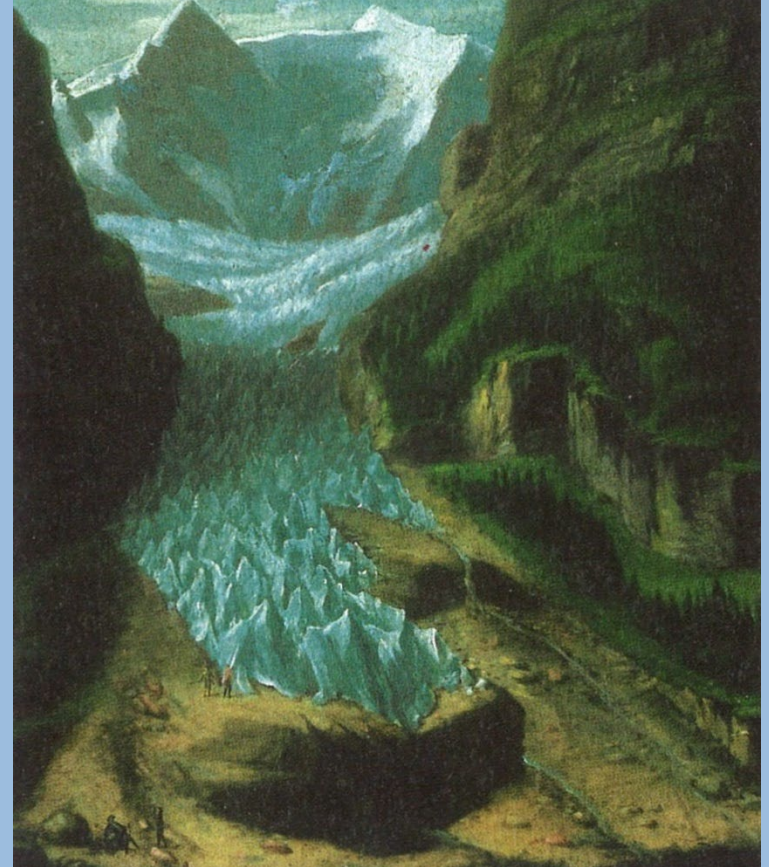
Caspar Wolf: Semipanorama of Grindelwald showing the Upper and Lower Grindelwald glacier, 1774/1776. Aarau: Aargauer Kunsthaus. Source: Zumbühl et al. 2016: 61.

Iconographic analysis of the Lower and Upper Grindelwald glacier

All images taken from Zumbühl et al. 2016: 110



Albrecht Kauw, 1669 (pen and ink, watercolour; detail)



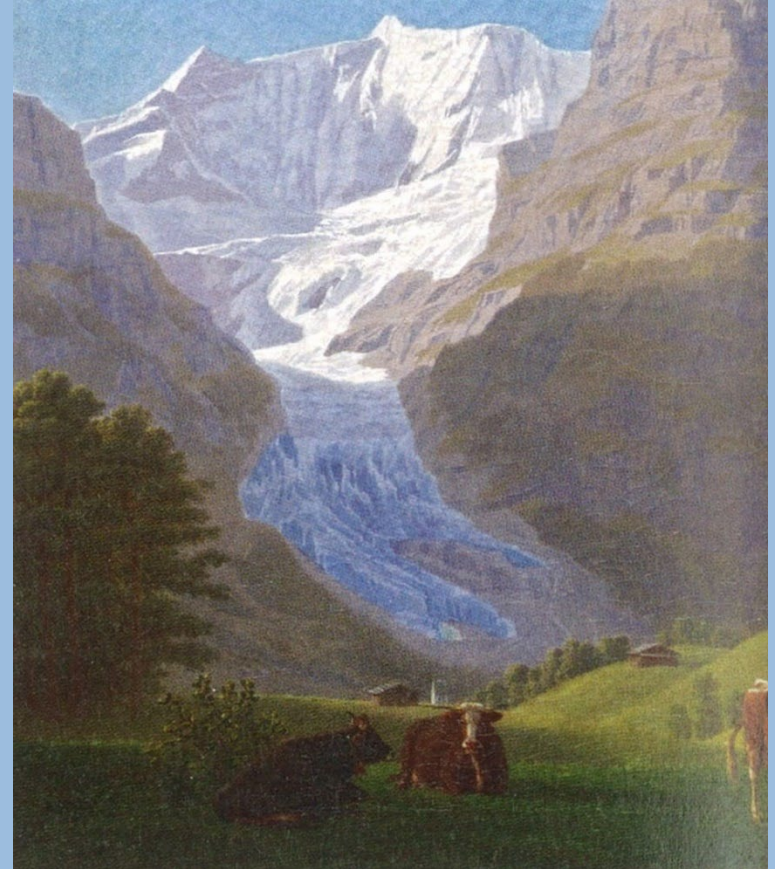
Emanuel Handmann, 1748/1749 (oil on canvas; detail)

Iconographic analysis of the Lower and Upper Grindelwald glacier

All images taken from Zumbühl et al. 2016: 110



Caspar Wolf, 1774/1776 (oil on canvas; detail)



Johann Jakob Biedermann, 1812 (oil on canvas; detail)

Iconographic analysis of the Lower and Upper Grindelwald glacier

All images taken from Zumbühl et al. 2016: 110



Samuel Birman, September 1826
(pencil, watercolour, gouache; detail)



Aimé Civiale, 1859 (photo;
detail)

Iconographic analysis of the Lower and Upper Grindelwald glacier

All images taken from Zumbühl et al. 2016: 110



Julius Beck, 1868 (photo;
detail)



Samuel Nussbaumer, 2013
(photo; detail)

Combining written and pictorial evidence

The ice flood of 1830 in Vienna (1)

- Many cold winter in the so-called Dalton Minimum (1790-1835)
- Ice flood similar to the one in 1784
- In 1830, most of the central European rivers get frozen
 - Danube River and catchment
 - Czech Lands
- Main Sources
 - Narrative sources, including newspapers
 - Treatise by Franz Sartori: *Wien's Tage der Gefahr und die Retter aus der Noth. Eine authentische Beschreibung der unerhörten Ueberschwemmung Wien's etc.*, Vienna 1830, 248 pp.
 - Focus on the affected districts of Vienna (casualties, damages)
 - Rescue management (single “local heroes”, donations)
 - Role of the Habsburg imperial family
 - Pictorial evidence
 - “Official” pictures by Eduard Gurk showing Archduke Ferdinand in action

Combining written and pictorial evidence

The ice flood of 1830 in Vienna (2)

Ice flood in Vienna, 1830, copperplate print from Sartori 1830



Combining written and pictorial evidence

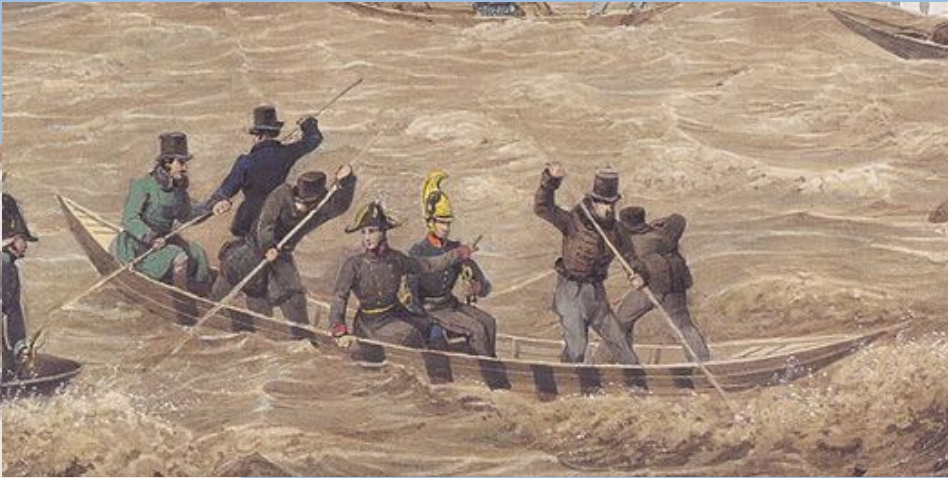
The ice flood of 1830 in Vienna (3)



The flooded quarter of Leopoldstadt (Jägerzeile) in Vienna. Watercolour drawing by Eduard Gurk, 1830.

Combining written and pictorial evidence

The ice flood of 1830 in Vienna (4)



The flooded quarter of Leopoldstadt (Jägerzeile) in Vienna. Watercolour drawing by Eduard Gurk, 1830 (details).



Combining written and pictorial evidence

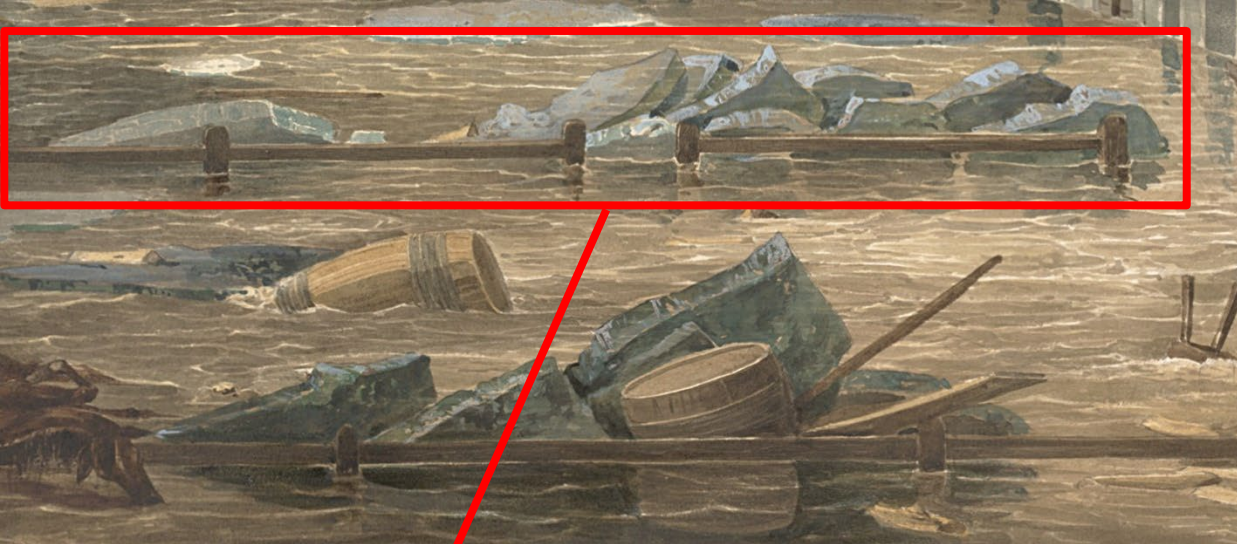
The ice flood of 1830 in Vienna (5)



The flooded quarter of Rossau (Schmidgasse) in Vienna. Watercolour drawing by Eduard Gurk, 1830.

Combining written and pictorial evidence

The ice flood of 1830 in Vienna (6)



The flooded quarter of Rossau (Schmidgasse) in Vienna. Watercolour drawing by Eduard Gurk, 1830 (details).

Protective fences in the streets



Combining written and pictorial evidence

The ice flood of 1830 in Vienna (7)



The flooded quarter of Rossau (Schmidgasse) in Vienna. Watercolour drawing by Eduard Gurk, 1830.

Combining written and pictorial evidence

The ice flood of 1830 in Vienna (8)



The flooded suburb village of Leopoldau. Watercolour drawing by Eduard Gurk, 1830.

Rescue management by the ruler

Emperor Napoleon III of France during the flood of 1856 in Tarascon



Emperor Napoleon III of France visiting flood victims of Tarascon on 3 June 1856. Oil-on-canvas painting by William Adolphe Bouguereau, 1856. Tarascon: Hôtel de ville, Salle des Consuls