

# Klima, Ostsee, Sturmfluten



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Wir. Wissen. Wetter.

# Was ist **Wetter**?

→ der augenblickliche Zustand, was jetzt gerade passiert



# Was ist **Klima**?

→ ein mittlerer Zustand, Mittel über 30 Jahre



# Temperatur



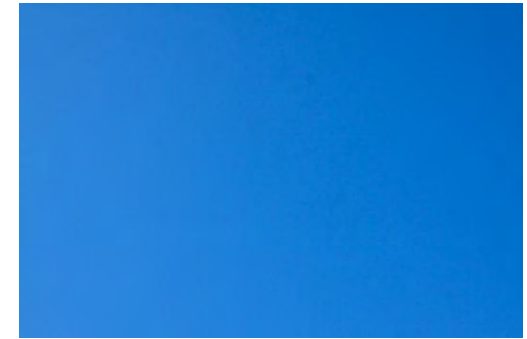
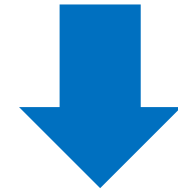
Hohe Temperatur = **warm** = geringe Dichte =  
**leichte Luft**

Niedrige Temperatur = **kalt** = große Dichte =  
**schwere Luft**

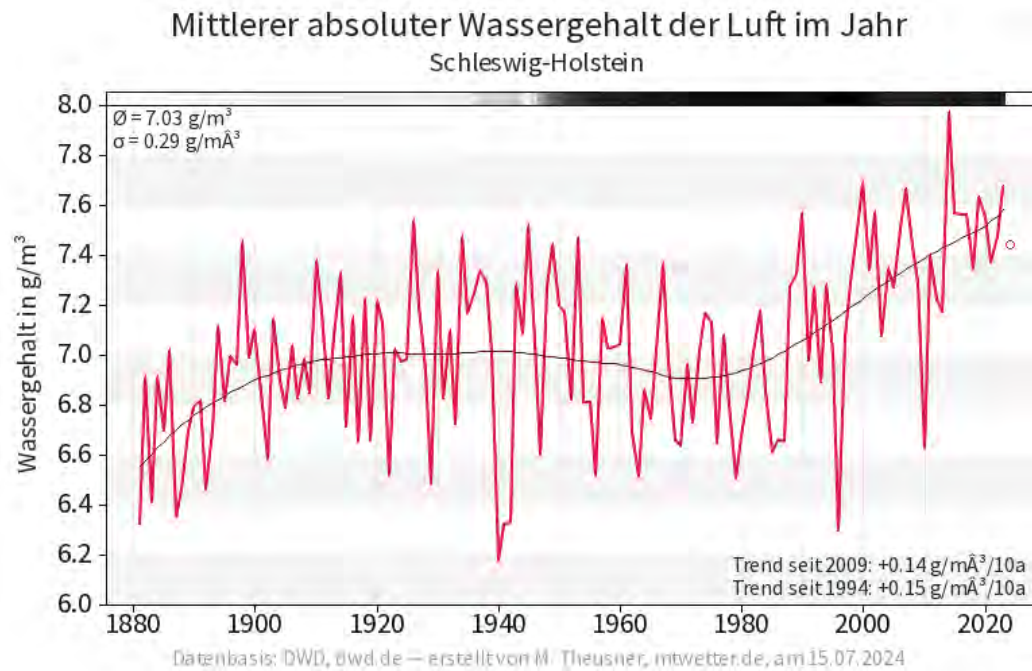
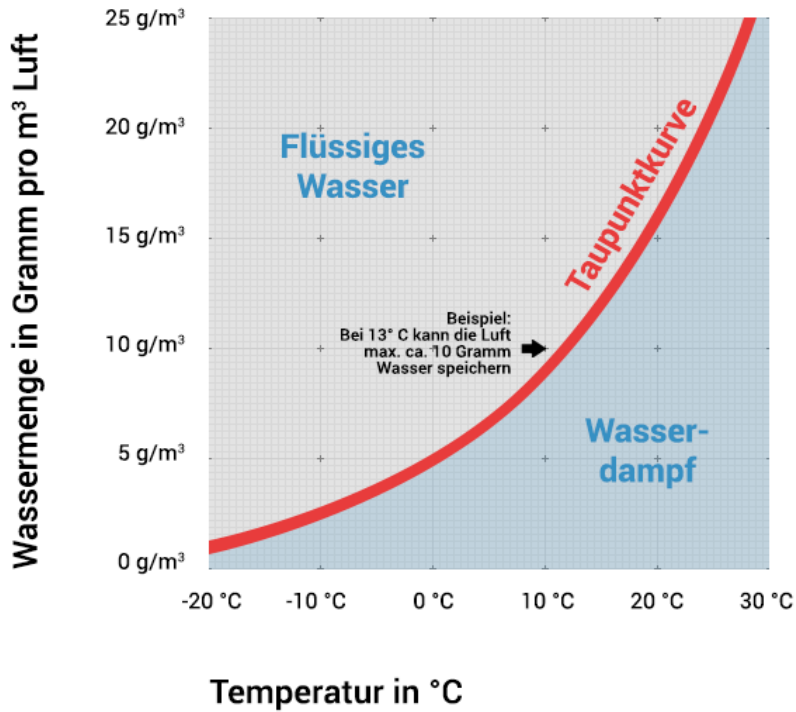


**Warme Luft steigt auf !**

**Kalte Luft sinkt ab !**

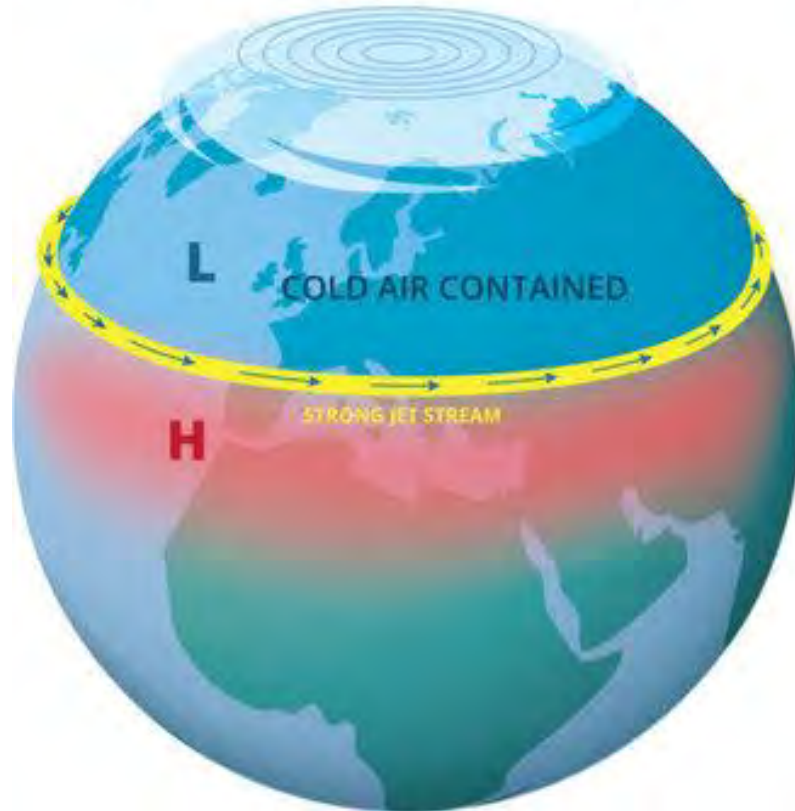


# Feuchte in der Atmosphäre → Energie

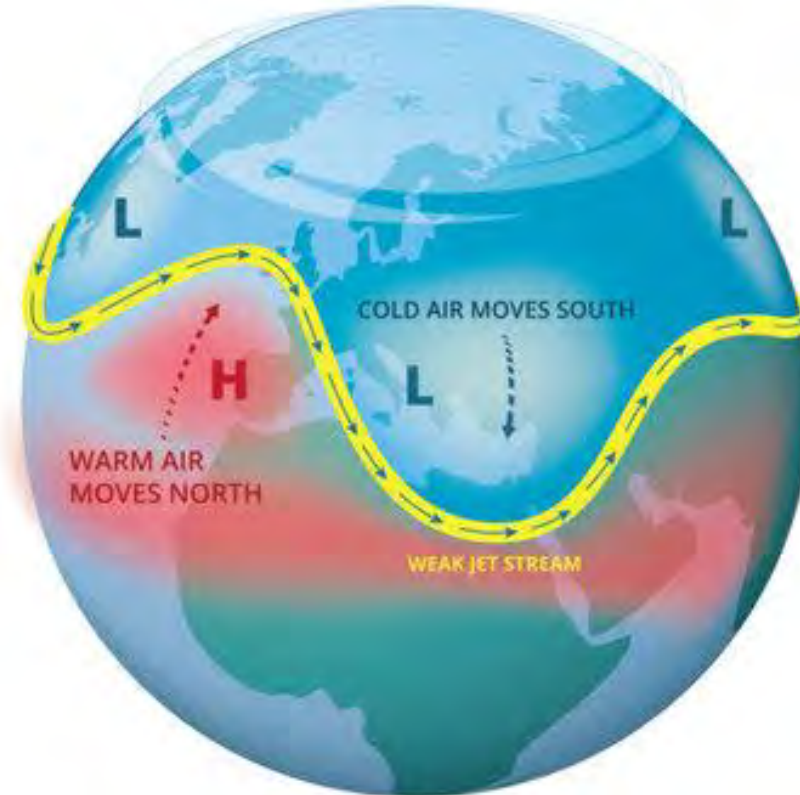


# Allgemein Zirkulation Unser Wetter

STABLE POLAR VORTEX

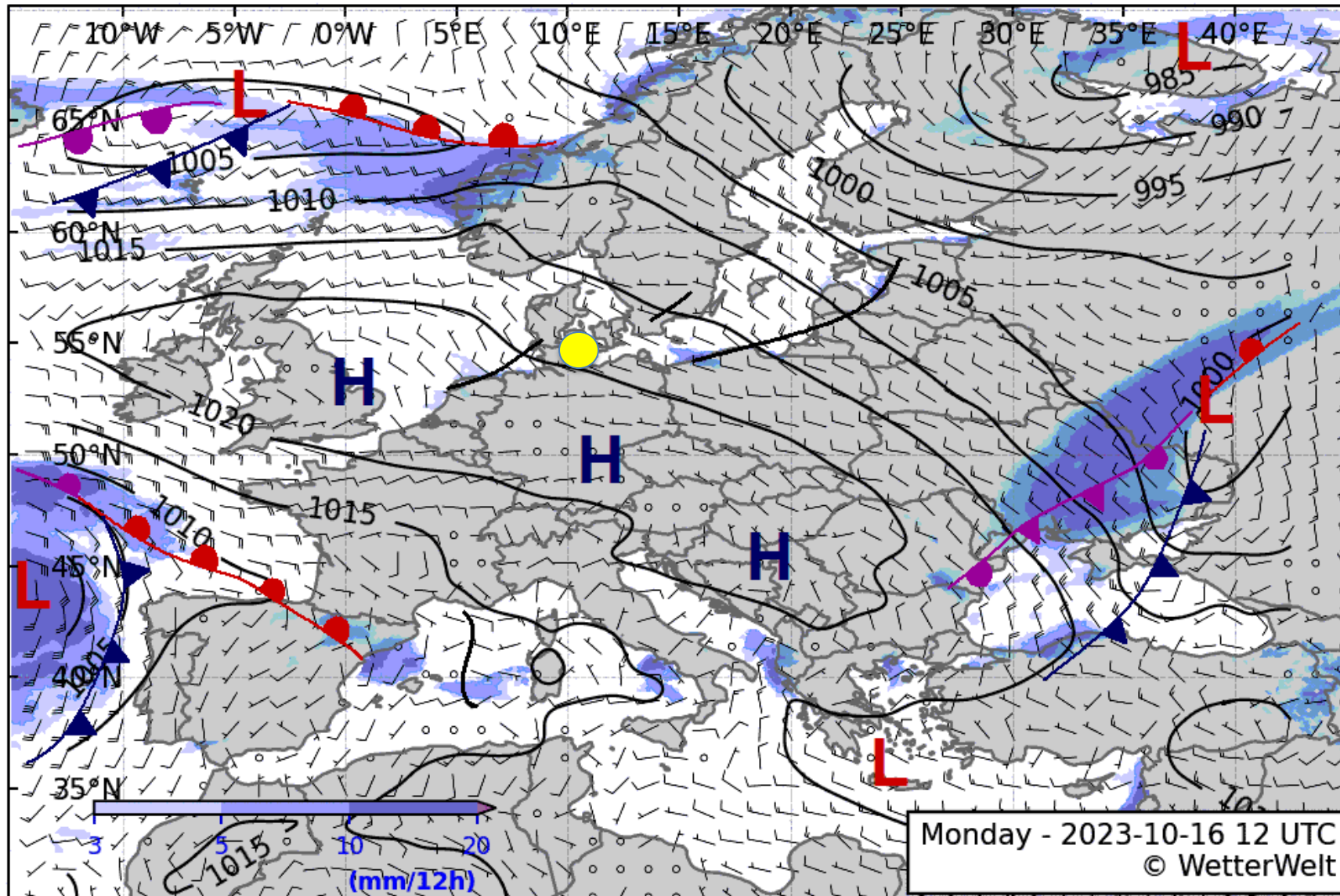


WAVY POLAR VORTEX



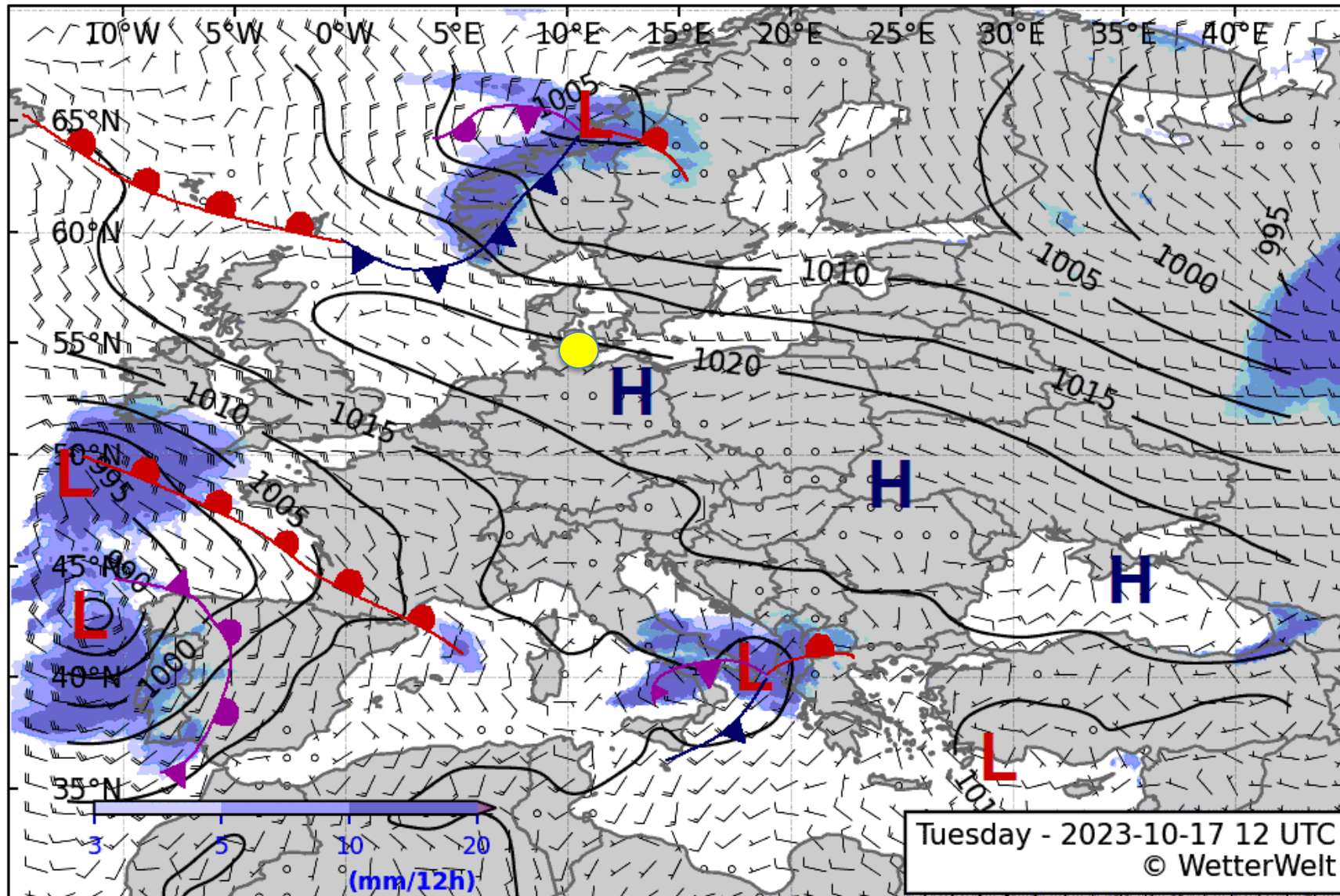
# Ostsee-Sturmflut

## Ablauf



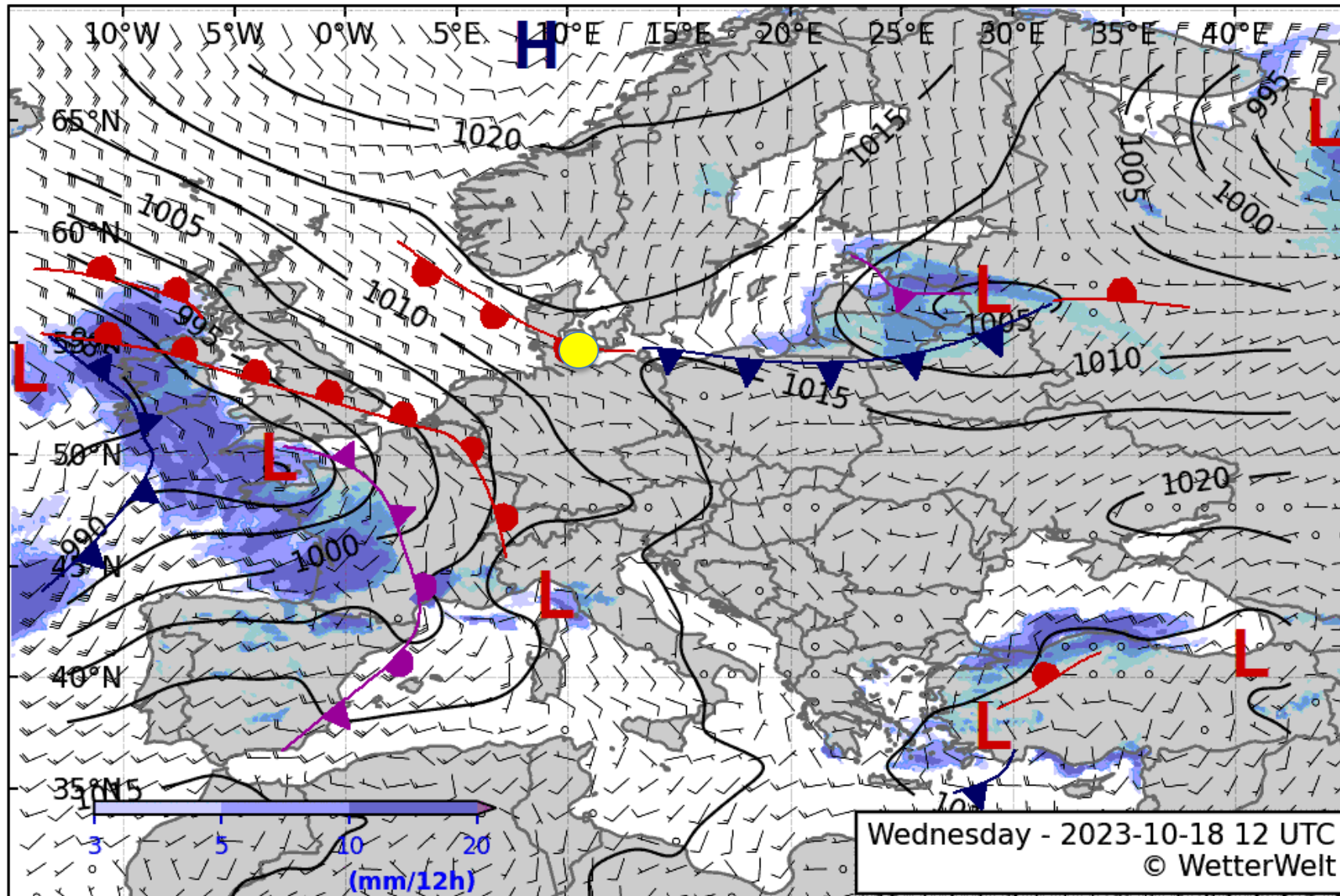
# Ostsee-Sturmflut

## Ablauf



# Ostsee-Sturmflut

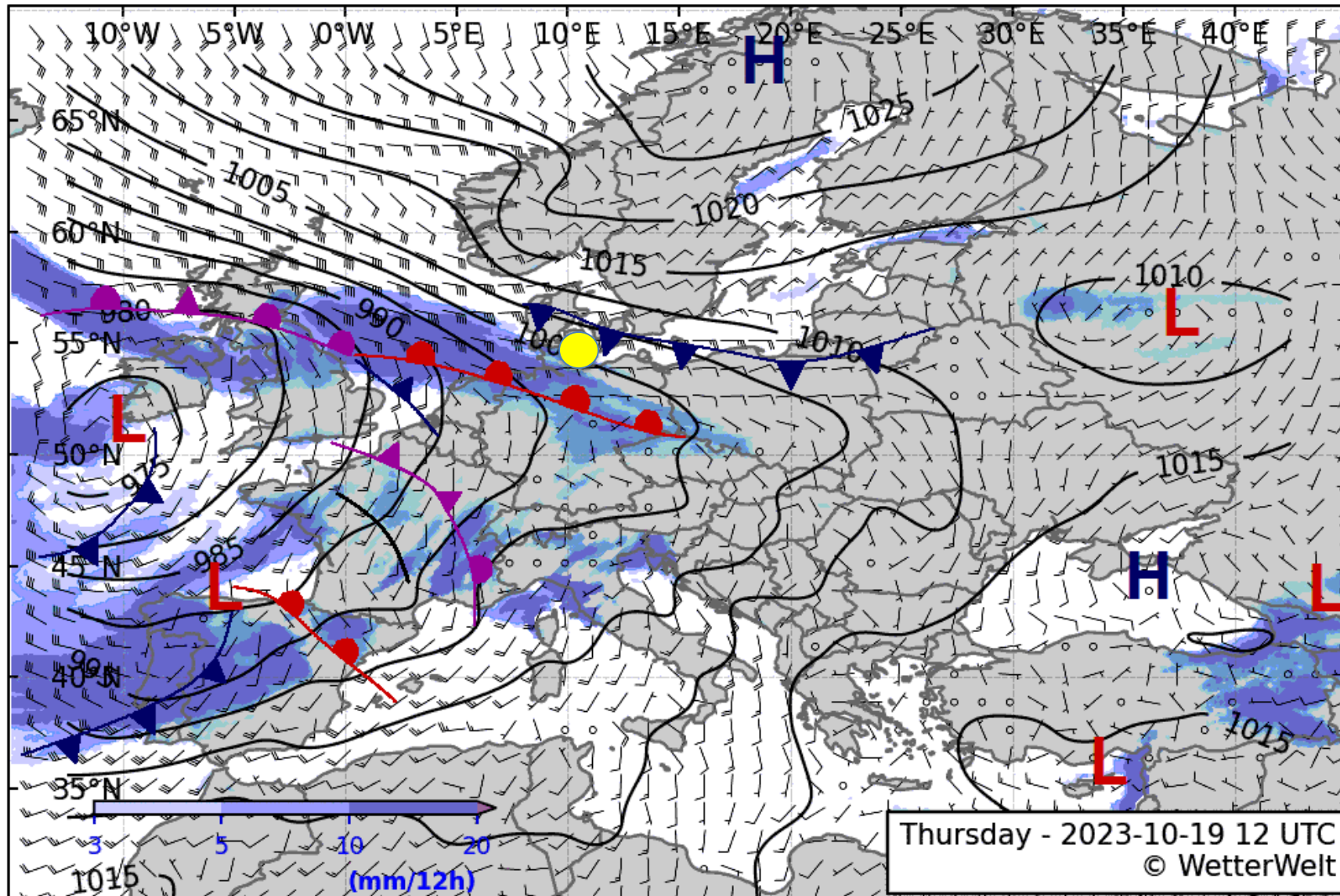
## Ablauf





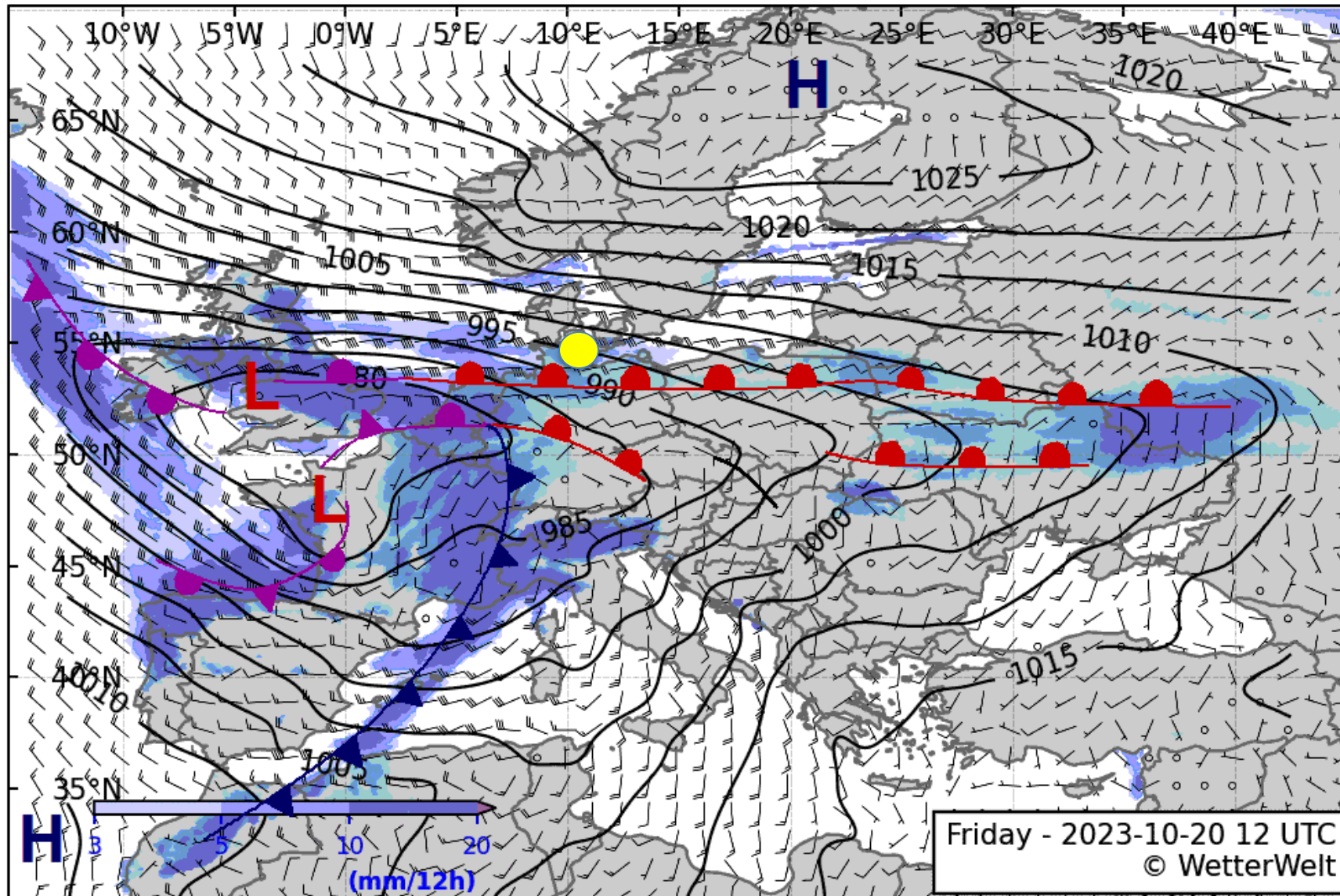
# Ostsee-Sturmflut

## Ablauf



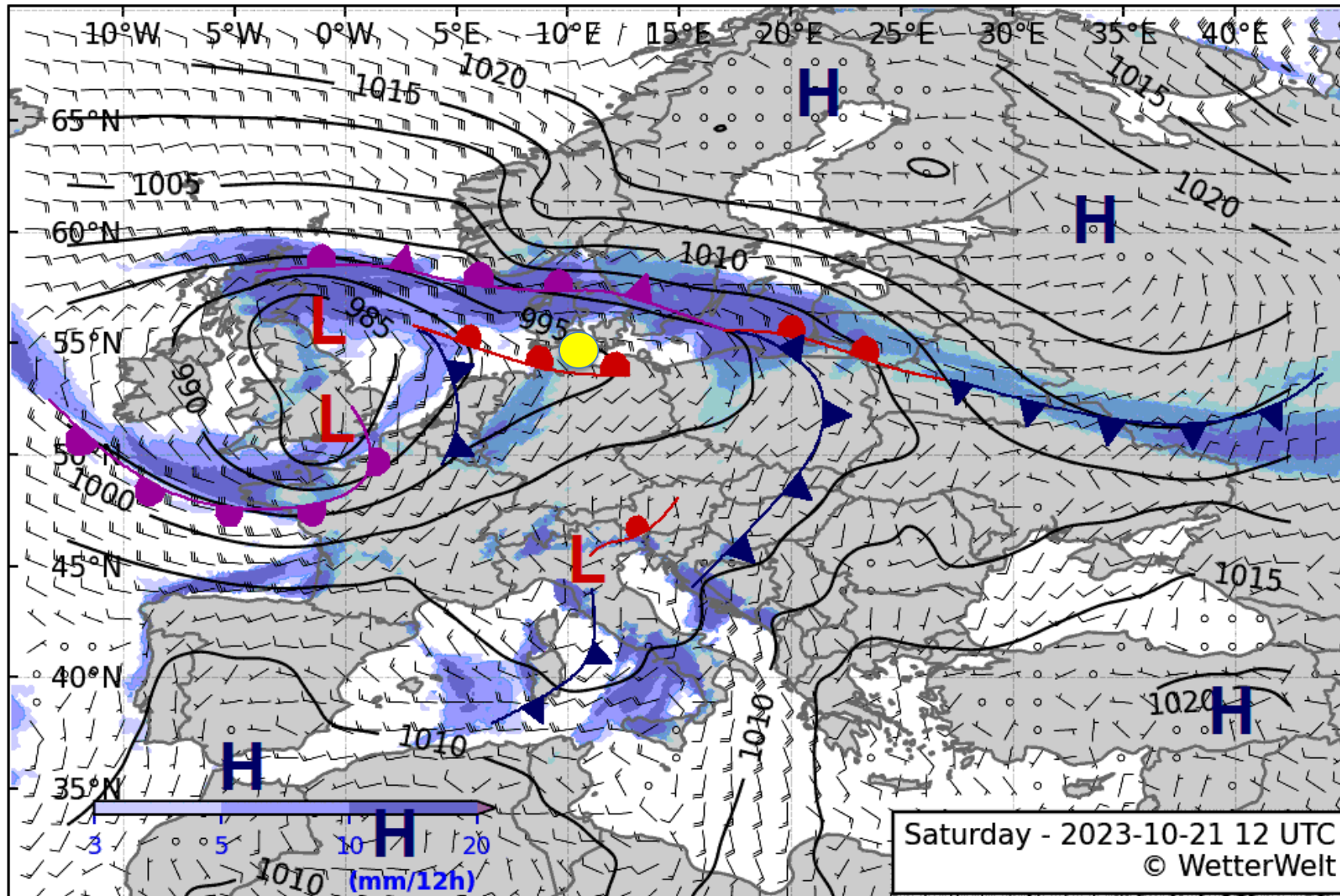
# Ostsee-Sturmflut

## Ablauf



# Ostsee-Sturmflut

## Ablauf

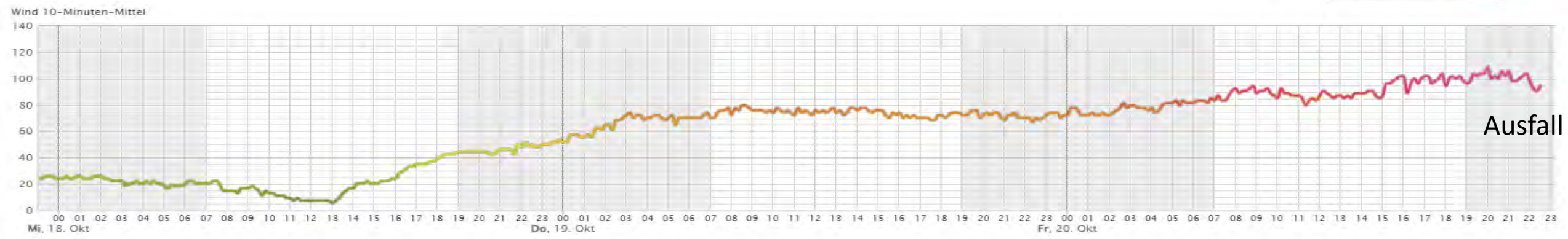


94km/h

Gemeldet um 22:30 Uhr

# Mittlerer Wind (!)

letzte 6 12 24 48 72 Stunden

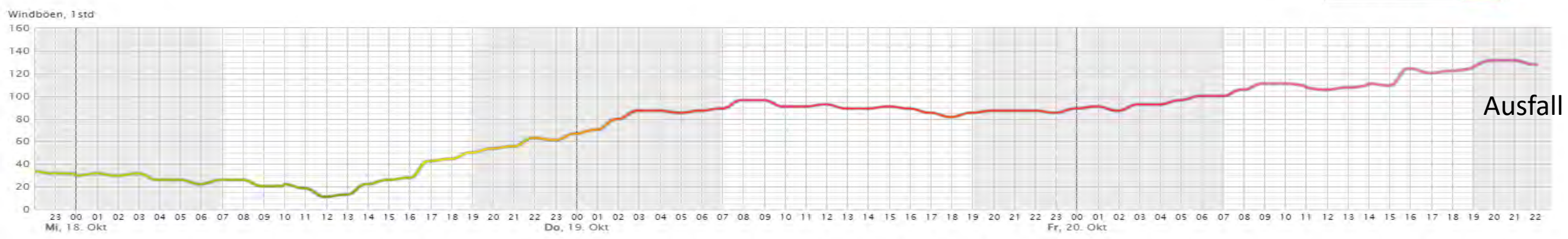


## Wind 10-Minuten-Mittel

128km/h

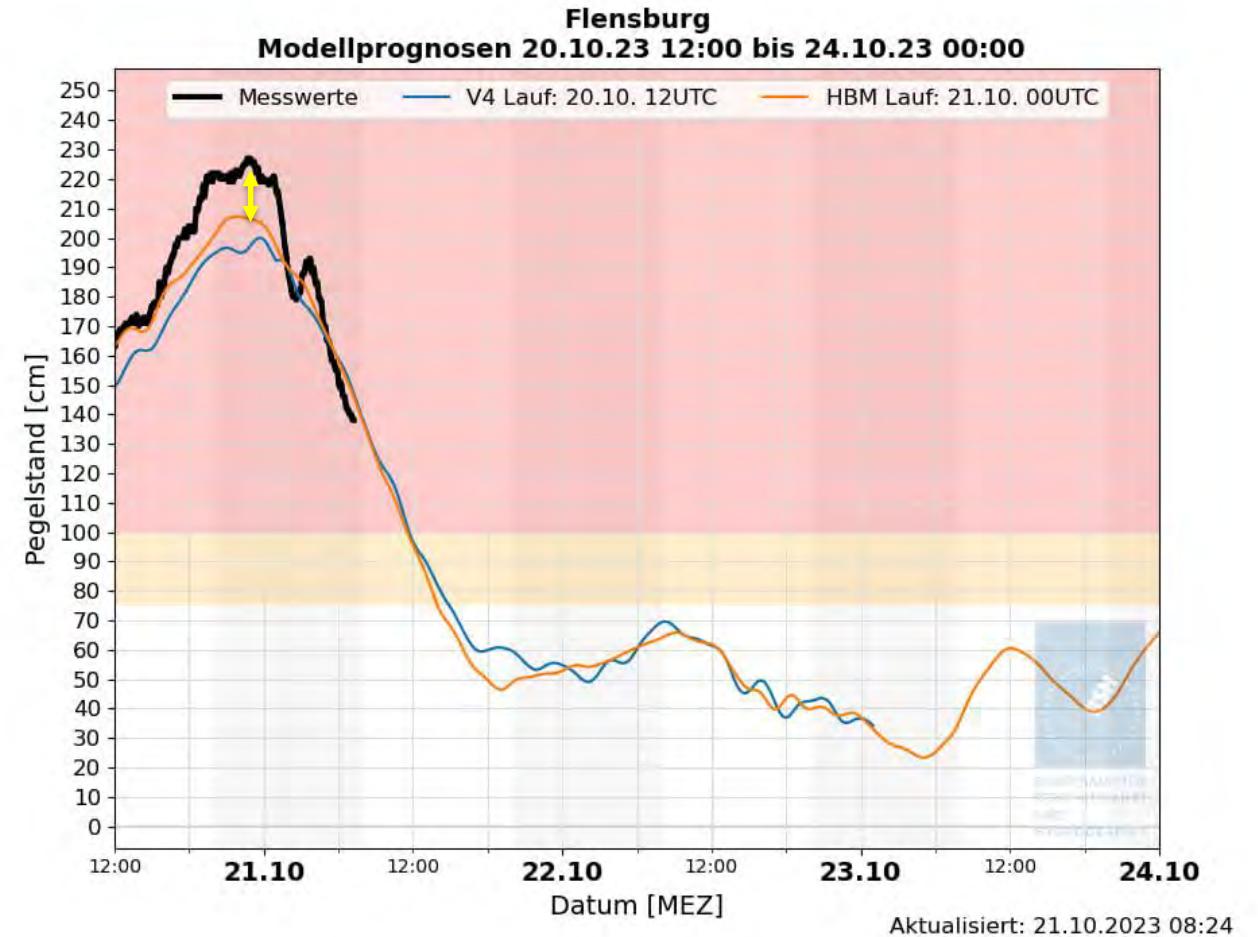
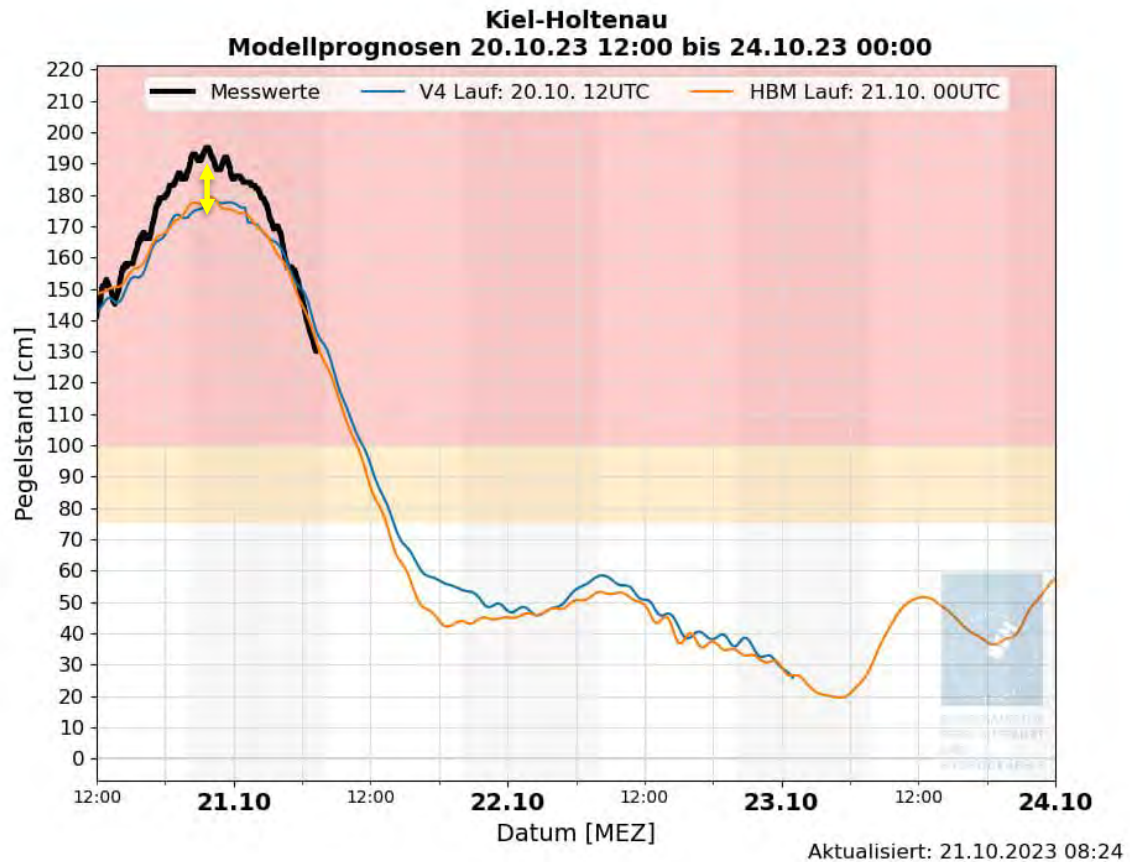
Gemeldet um 22:00 Uhr

letzte 6 12 24 48 72 Stunden



## Windböen, 1std

# Ostsee-Sturmflut Pegel



# Flensburg



# Schilksee

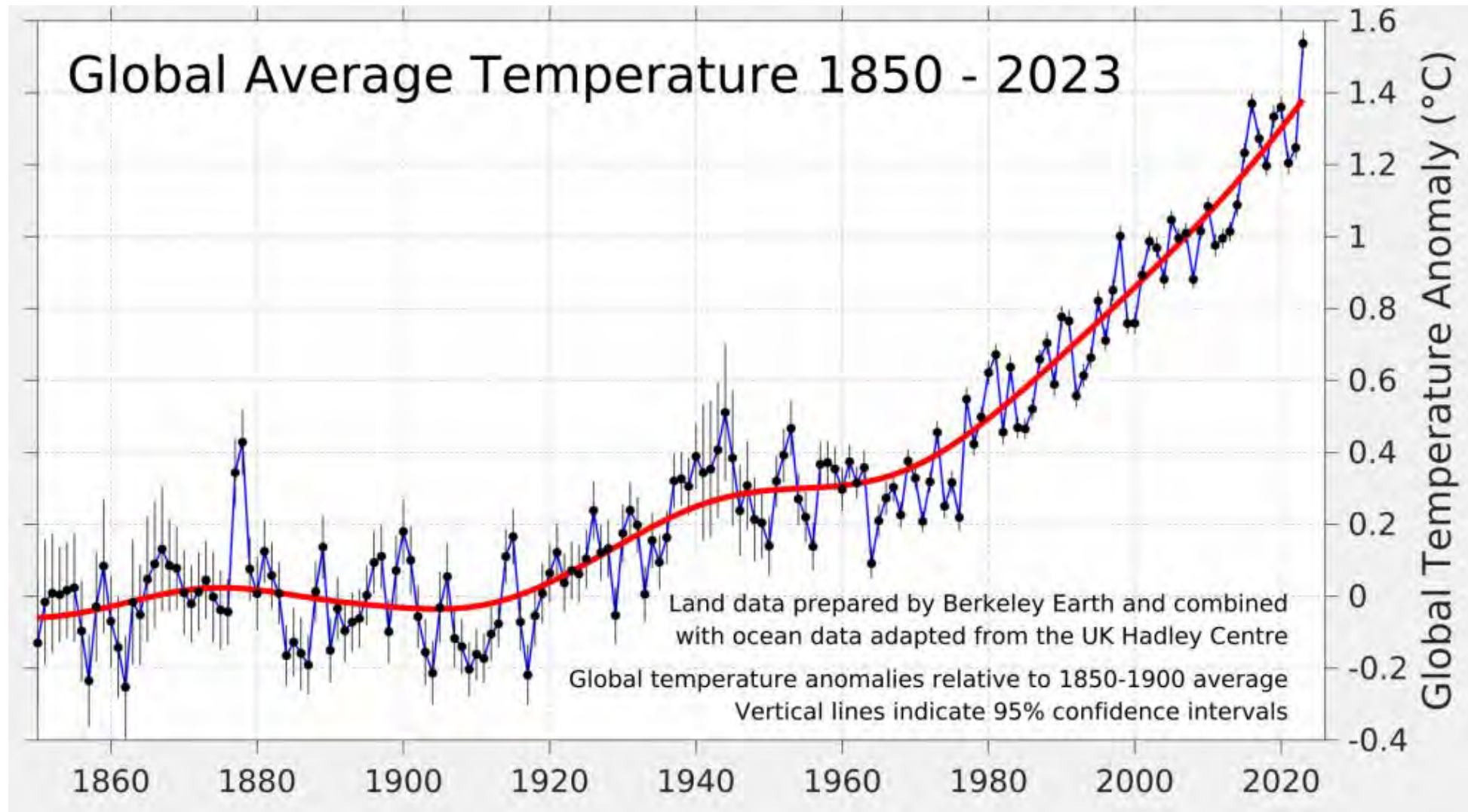


# Schilksee





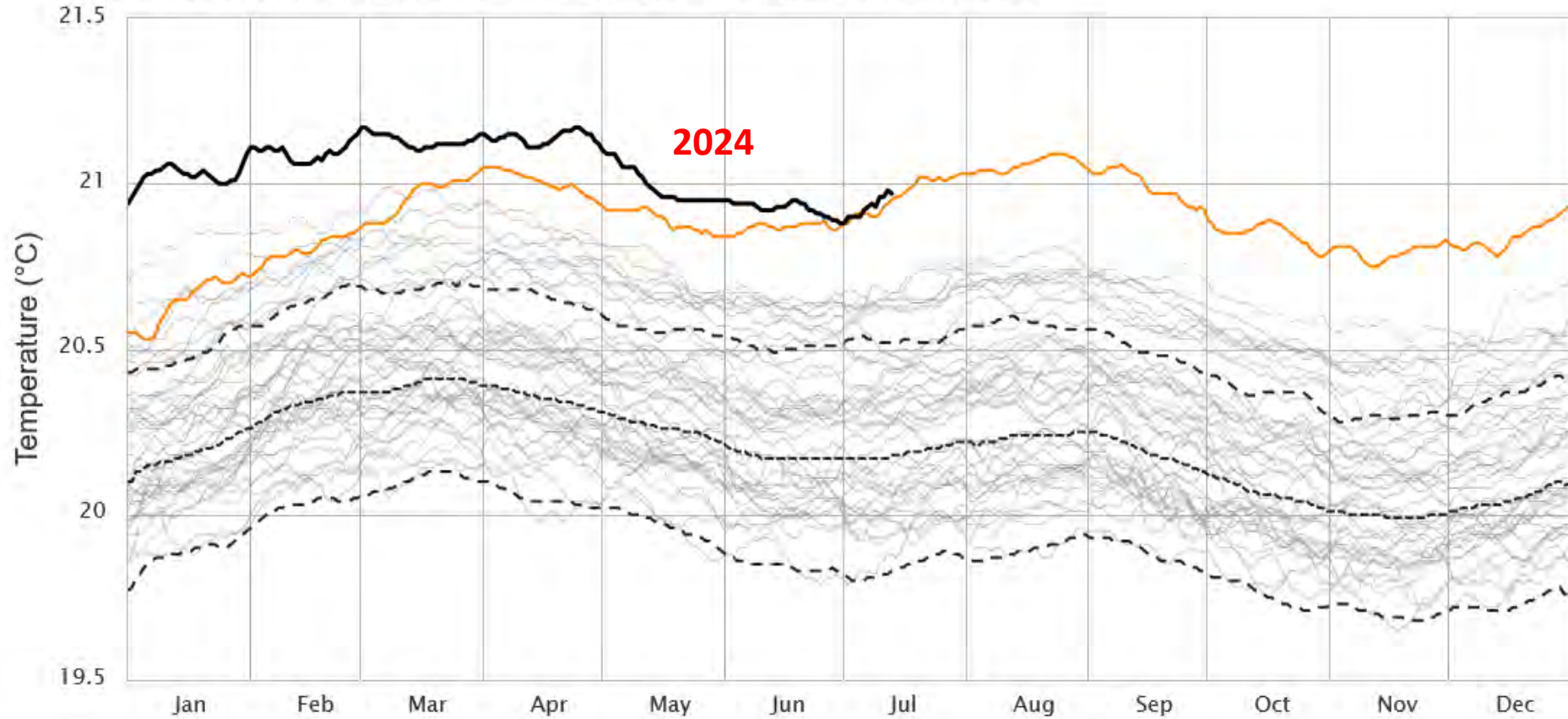
# Zukunftsaussichten weltweiter Temperaturanstieg



# Wassertemperaturen

## Daily Sea Surface Temperature, World (60°S–60°N, 0–360°E)

Dataset: NOAA OISST V2.1 | Image Credit: ClimateReanalyzer.org, Climate Change Institute, University of Maine



- |      |      |                |                 |                  |      |      |
|------|------|----------------|-----------------|------------------|------|------|
| 1981 | 1982 | 1983           | 1984            | 1985             | 1986 | 1987 |
| 1988 | 1989 | 1990           | 1991            | 1992             | 1993 | 1994 |
| 1995 | 1996 | 1997           | 1998            | 1999             | 2000 | 2001 |
| 2002 | 2003 | 2004           | 2005            | 2006             | 2007 | 2008 |
| 2009 | 2010 | 2011           | 2012            | 2013             | 2014 | 2015 |
| 2016 | 2017 | 2018           | 2019            | 2020             | 2021 | 2022 |
| 2023 | 2024 | 1982–2011 mean | plus 2 $\sigma$ | minus 2 $\sigma$ |      |      |

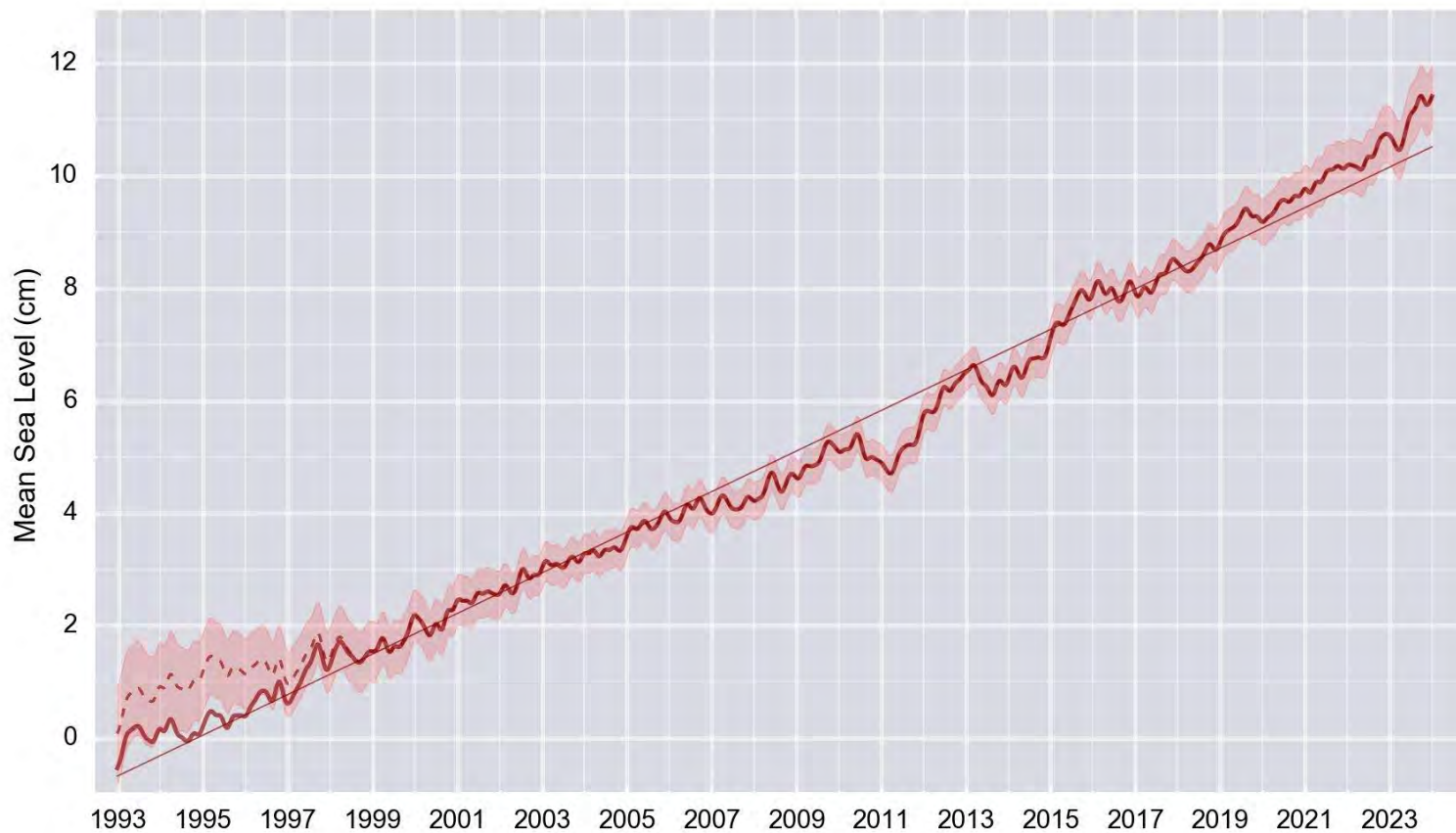


# weltweiter Pegelanstieg pro Jahr

Latest MSL Measurement  
16 January, 2024

**+3.61 mm/yr**

Reference GMSL - corrected for GIA



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# Gründe für Meeresspiegelanstieg

Schmelze der Eisschilde + Gletscher

Thermische Expansion

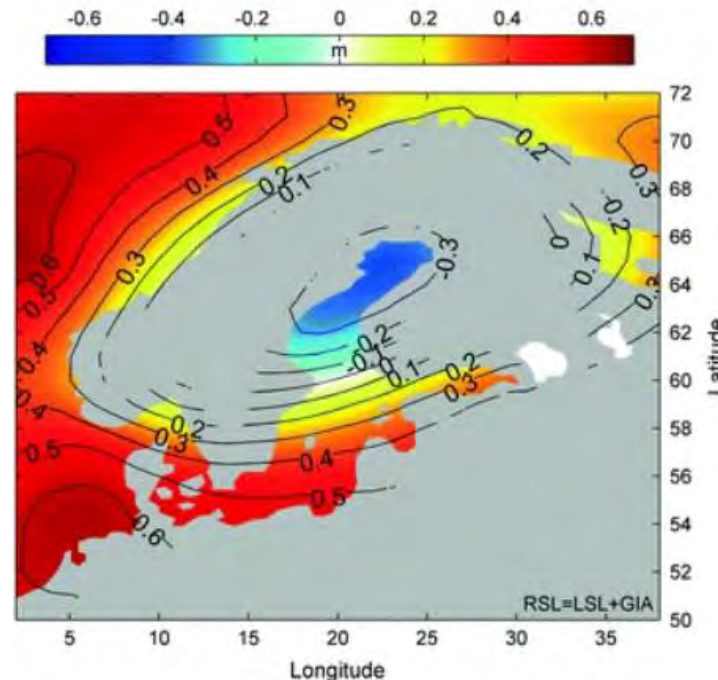
Speziell Ostsee:  
Anhebung der Erdkruste

Bottnischer Meerbusen:  
Hebung + 10 mm/Jahr,  
hier sinkt Meeresspiegel  
-8,2 mm/Jahr

Ostseeküste SH:  
Anstieg um 60 cm bis 2100

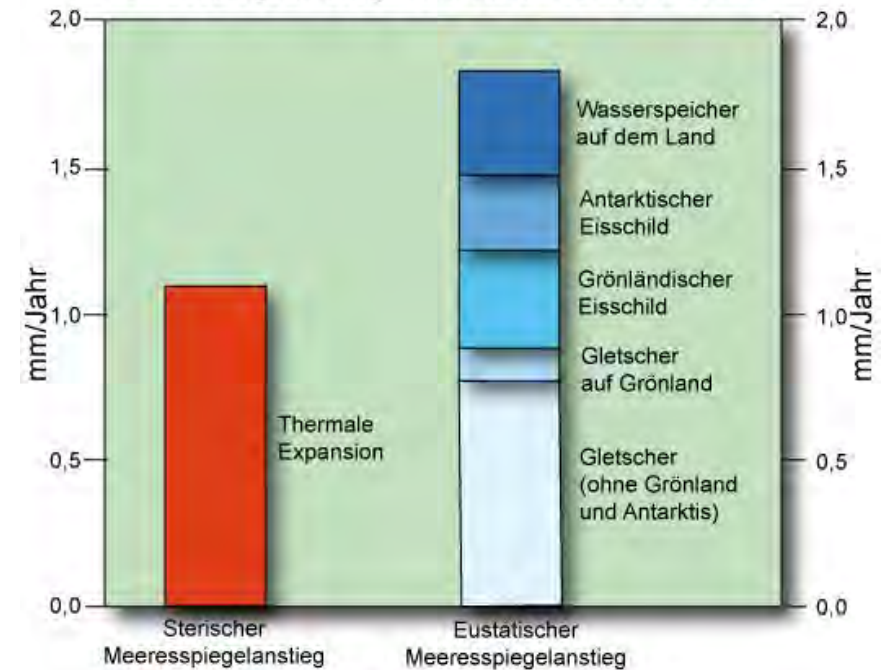


Vergleich Ende 20. vs. 21 Jhd.



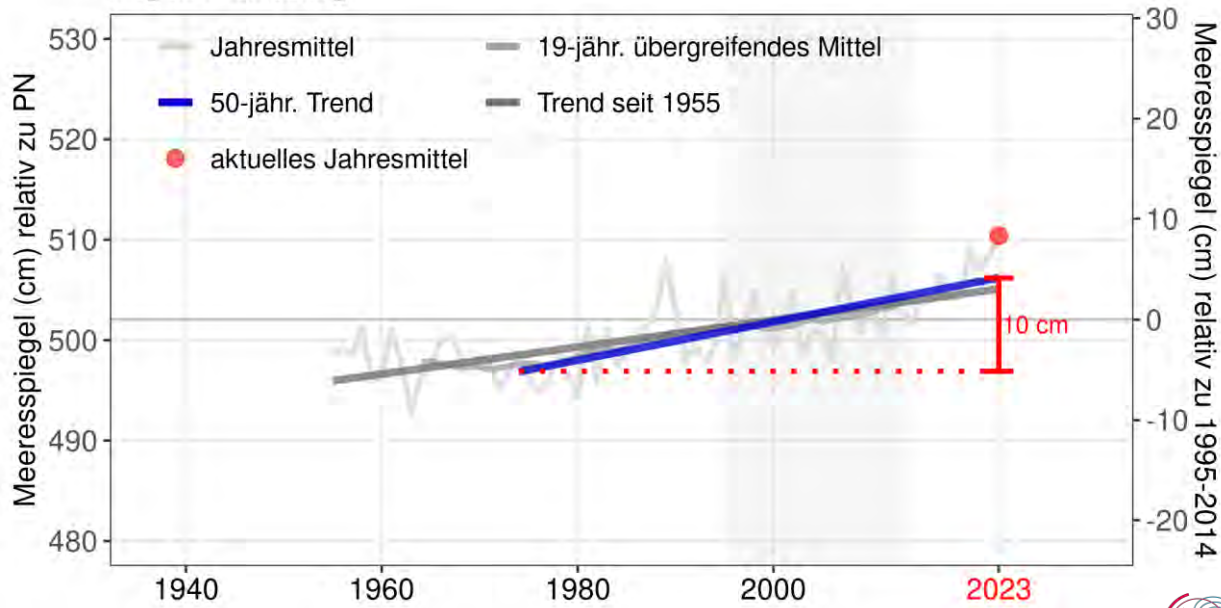
Projected Change—Sea Level

Meeresspiegelanstieg 1993-2010 nach Verursachern



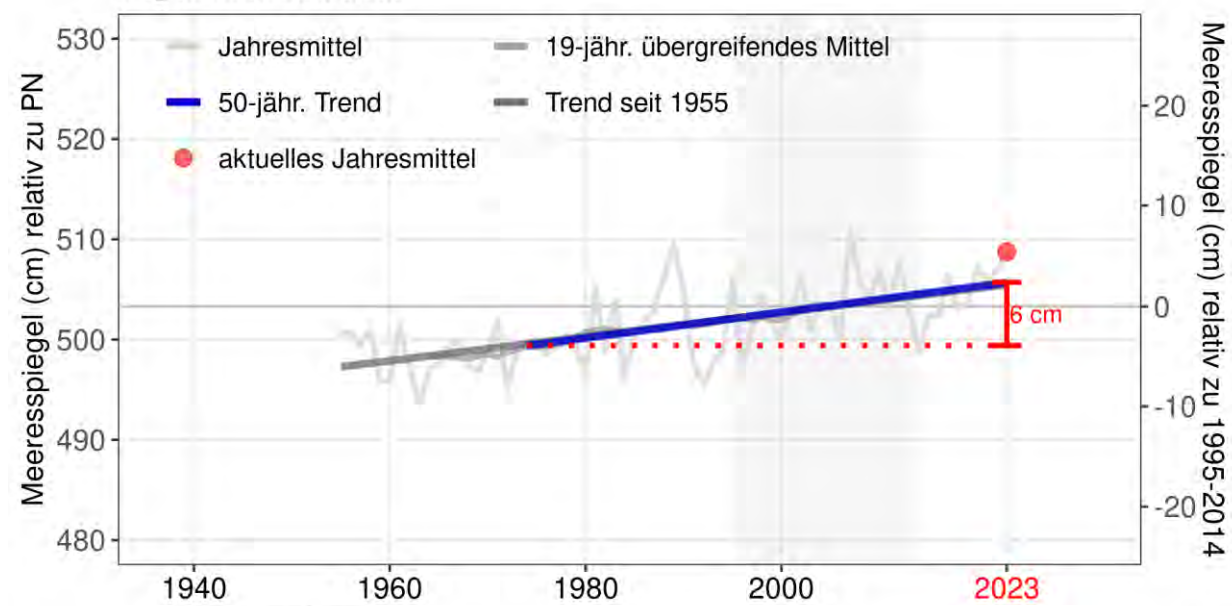
## Meeresspiegelanstieg seit 1955

Pegel: Flensburg



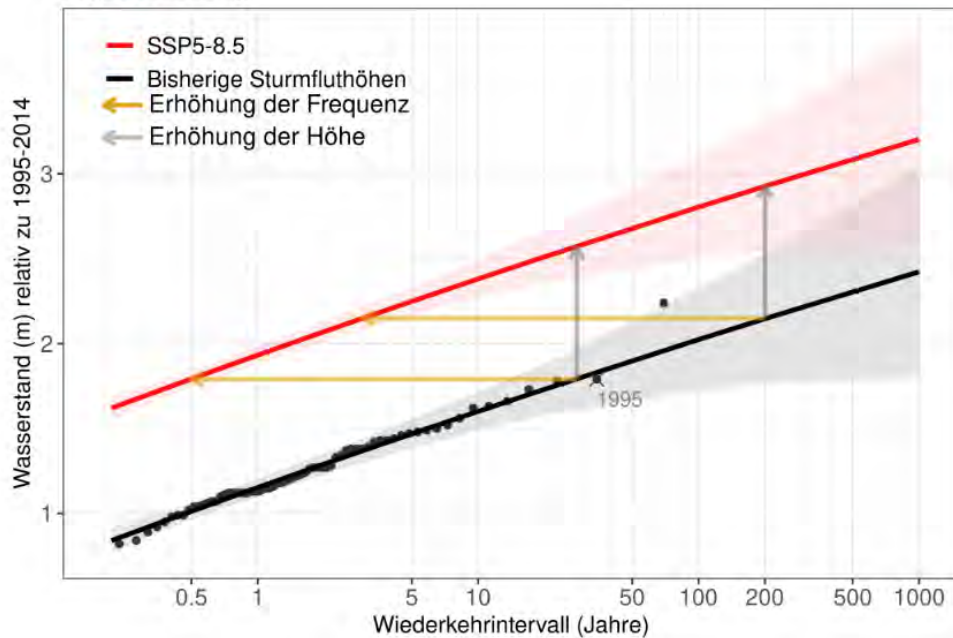
## Meeresspiegelanstieg seit 1955

Pegel: Kiel-Holtenau



## Sturmfluten

Pegel: Flensburg



## Sturmfluten

Pegel: Kiel-Holtenau

