

Petro van Doorne



- 66 jaar
- Getrouwd met Ulrike
- Projectleider bij Voets&Donkers Koeltechniek
- Instructeur en examinator
  afdeling Gelderland van het Gilde van Vrijwillige Molenaars
- Bestuurslid SVGM
  Molenfederatie Gelderland
- Commissielid Korenmolenaarscursus
- Sinds 1995 vrijwillig molenaar:
  - 1995 ï 2012: ñDe Vlinderò
  - 2007 ï 2014: ñAchterste Molenò



Petro van Doorne



- 2014-2024: ñVento Vivimusò in Hurwenen
- Sinds 7 december 2017: immaterieel cultereel erfgoed van de mensheid bij UNESCO
- Sinds 2020:  ñTot Voordeel En Genoegenò in Alphen a/d Maas
- Sinds 2022: ñDe Bolòin Varik 



DE MOLENAAR EN HET WEER



- *INLEIDING*
- *ATMOSFEER*
- *WOLKEN*
- *WINDREGELS*
- *INVLOEDEN WEER OP MOLEN*

INLEIDING



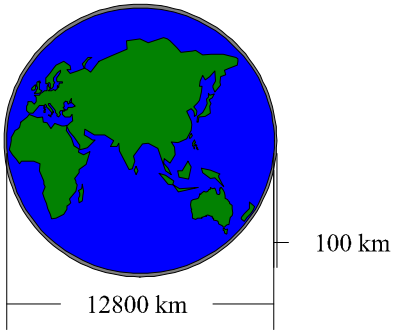
- *HET WEER*
- *WAAROM EEN LESBRIEF OVER HET WEER ?*
- *WEERINFORMATIE*
- *WEERINSTRUMENTEN*

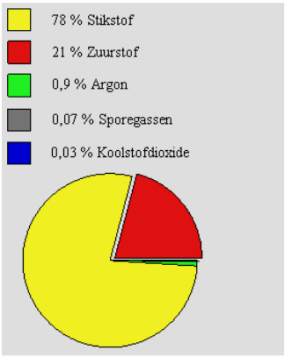
ATMOSFEER

- OPBOUW VAN DE ATMOSFEER
- LUCHTDRUK EN WIND
- LUCHTCIRCULATIE
- FRONTEN
- DEPRESSIE
- HOGEDRUKGEBIED
- ONWEER
- BUIEN
- ZEEWIND

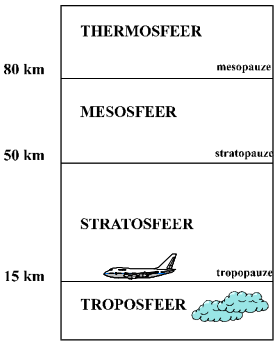


OPBOUW VAN DE ATMOSFEER





OPBOUW VAN DE ATMOSFEER



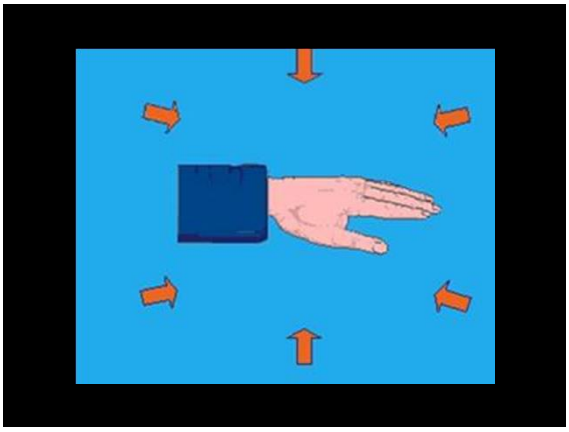
LUCHTDRUK EN WIND

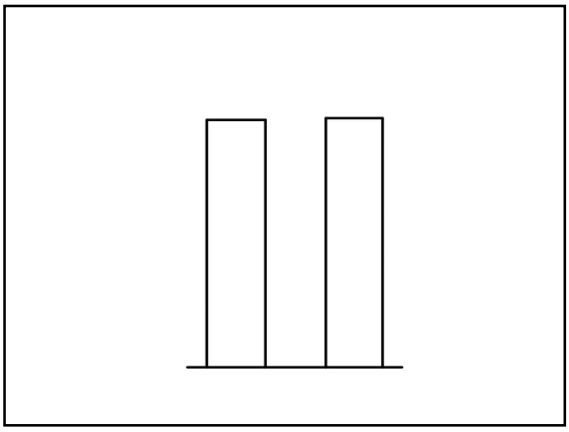


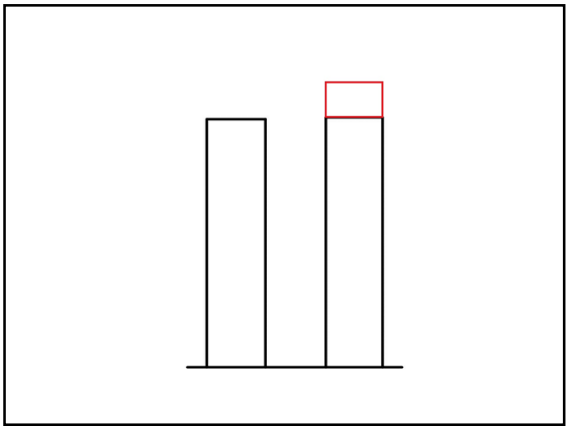
= 200 KG

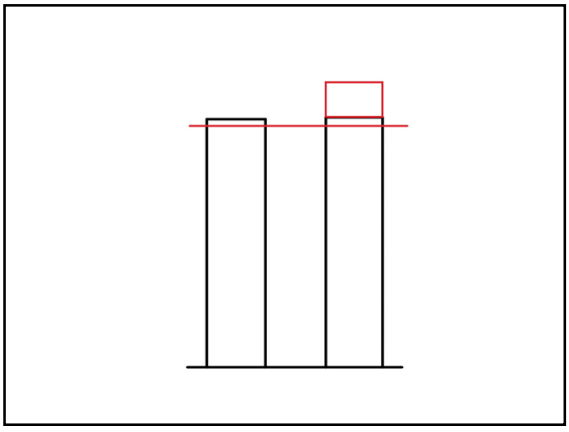
VERKLARING 200 KG

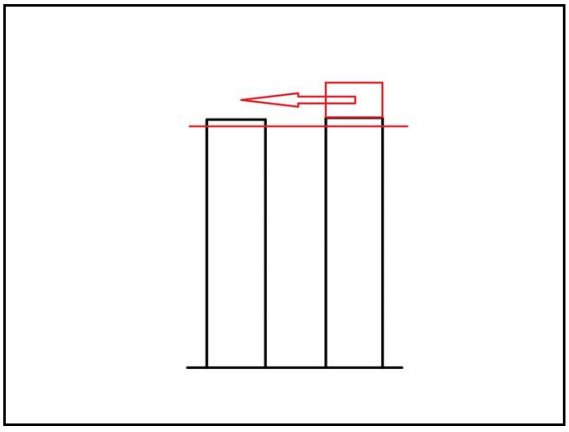
- Gemiddelde luchtdruk = 1013 mbar.
- 1013 mbar = 1,013 x 10^5 N/m^2.
- 1,013 x 10^5 N/m^2 = 1,013 x 10^4 kg/m^2.
- Opp. hand = 0,2 x 0,1 = 0,02 m^2.
- 1,013 x 10^4 kg/m^2 x 0,02 m^2 = 202,6 kg.

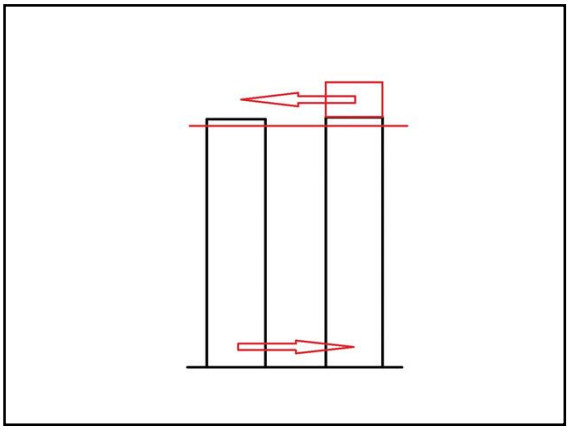


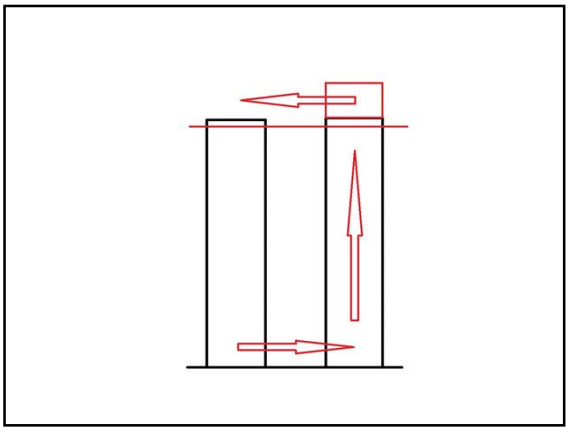


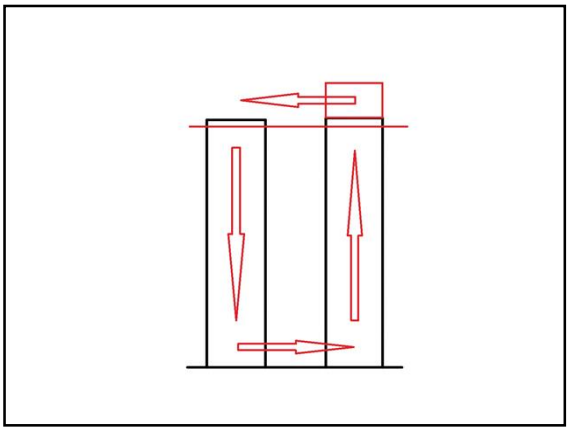


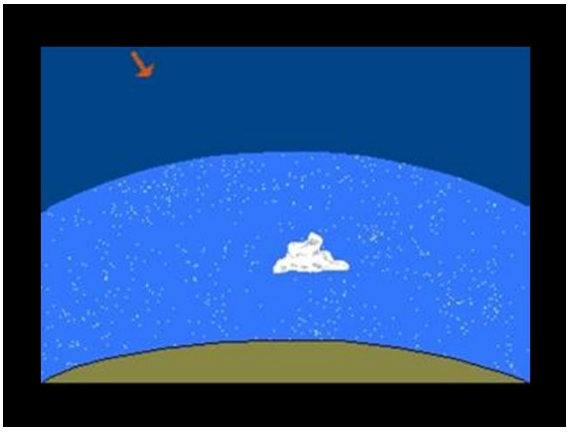


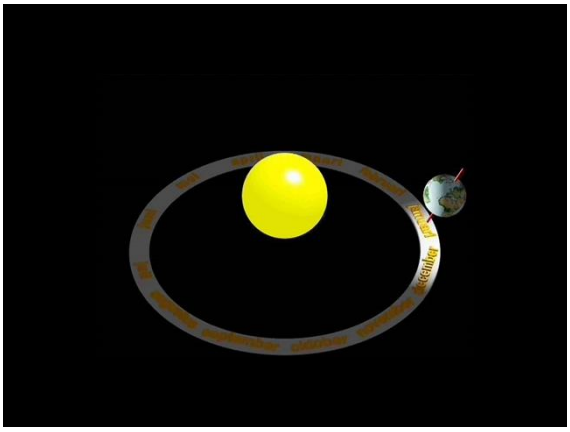


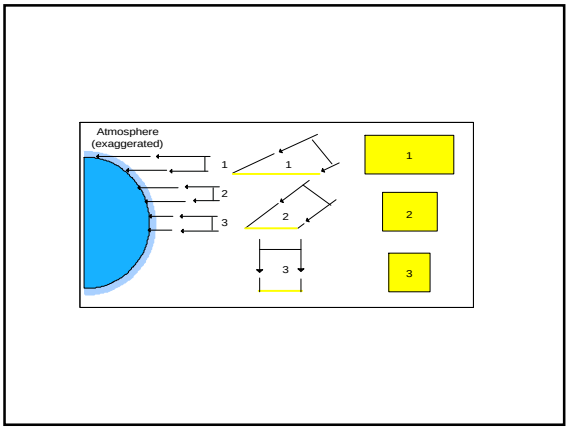


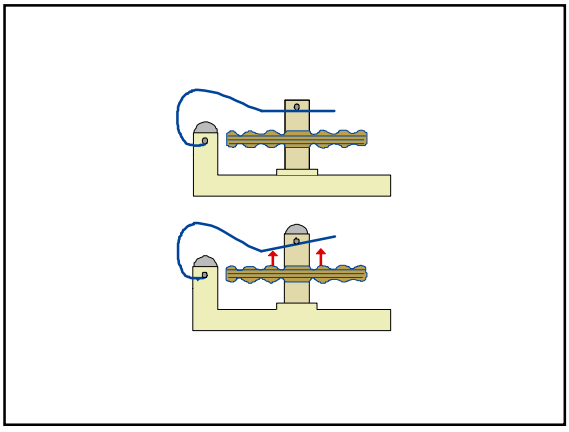


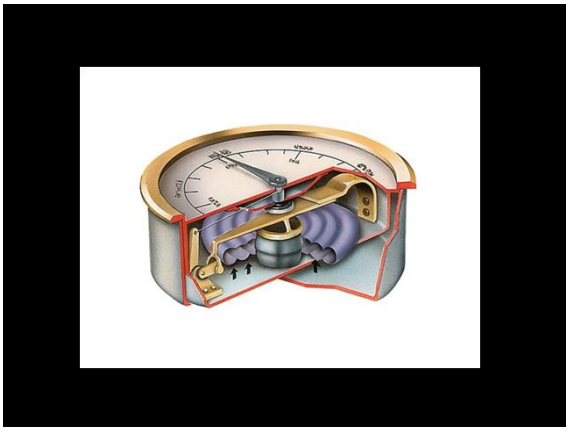


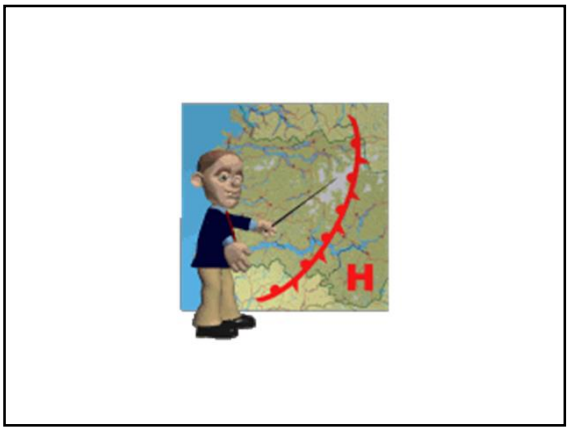


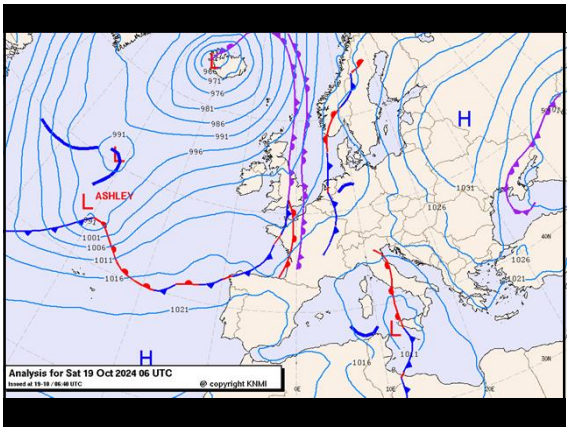


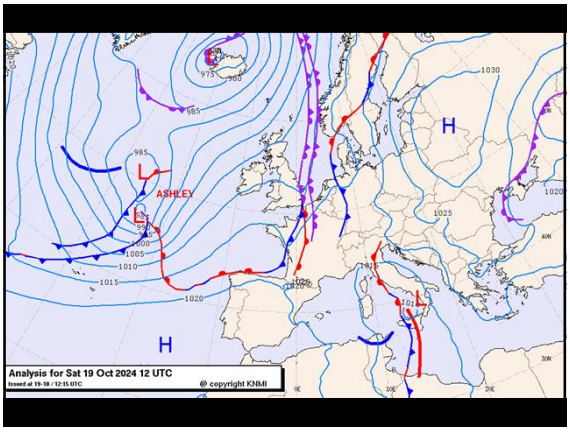

Atmosphere
(exaggerated)
1
2
3
1
2
3
1
2
3

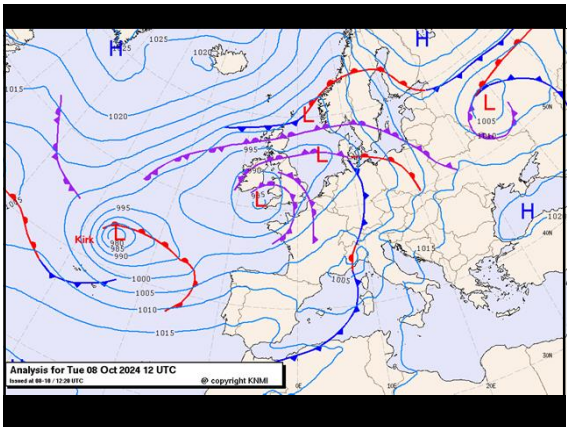


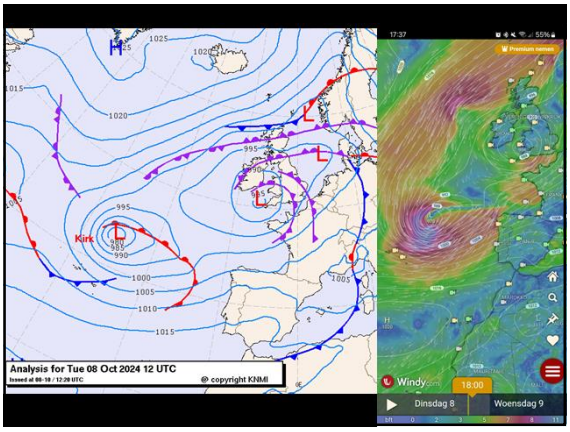


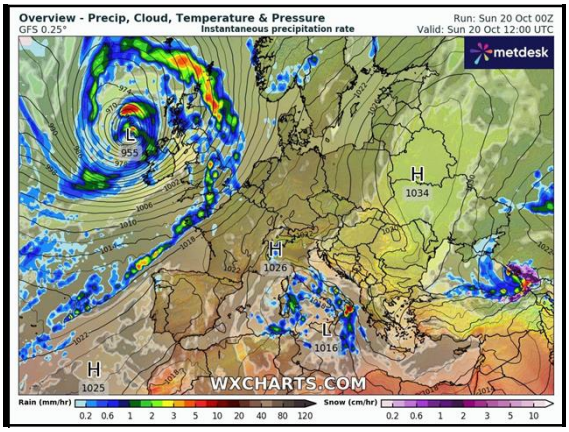

H


L
ASHLEY
H
Analysis for Sat 19 Oct 2024 06 UTC
@ copyright KNMI

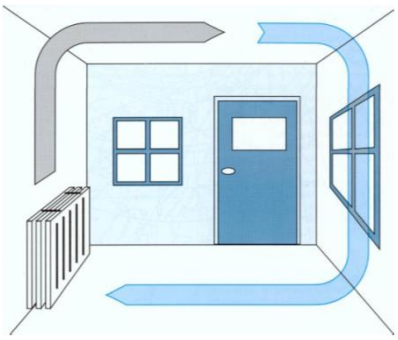

L
ASHLEY
H
Analysis for Sat 19 Oct 2024 12 UTC
@ copyright KNMI

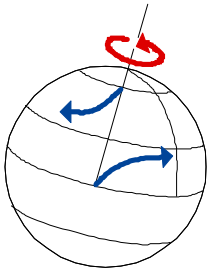

H
L
Kirk
Analysis for Tue 08 Oct 2024 12 UTC
@ copyright KNMI

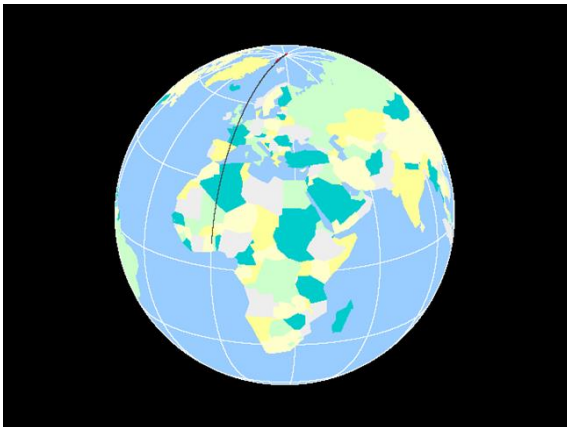

H
L
Kirk
Analysis for Tue 08 Oct 2024 12 UTC
@ copyright KNMI
Windy
18:00
Dinsdag 8
Woensdag 9

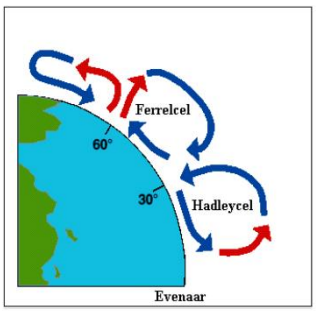


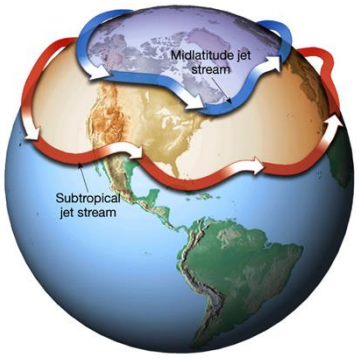
LUCHTCIRCULATIE





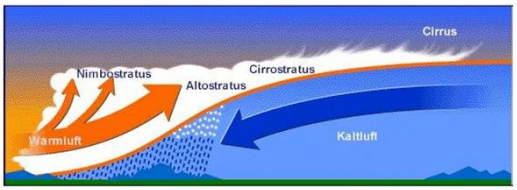


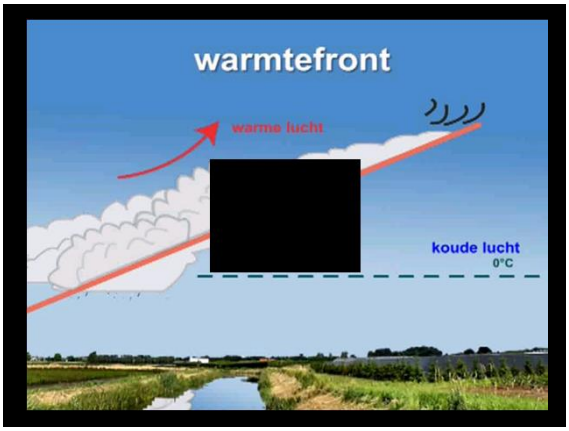




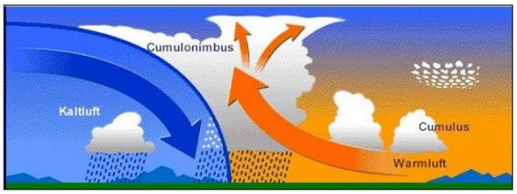


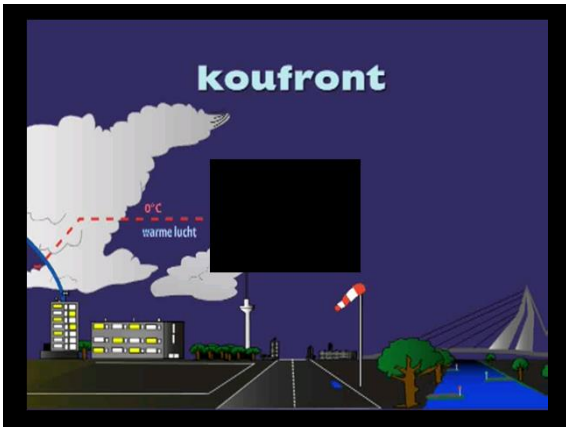
WARMTEFRONT



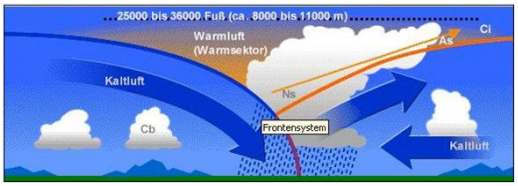


KOUFRONT

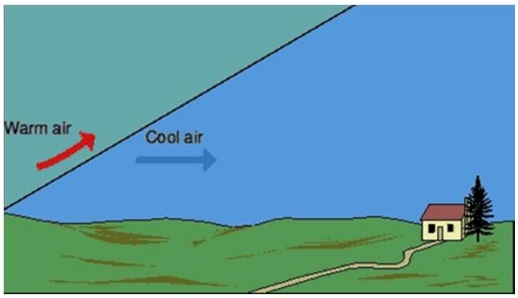




OCCLUSIEFRONT



OCCLUSIEFRONT

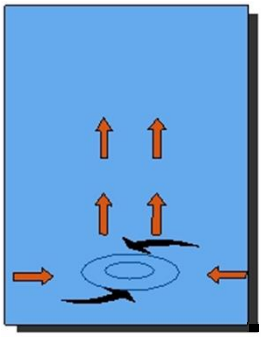


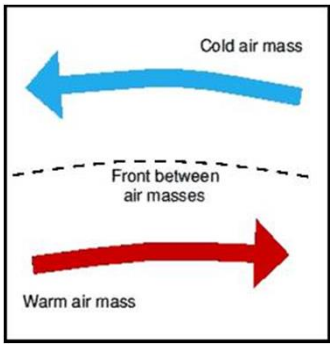
DEPRESSIE



LAGEDRUKGEBIED

- *luchtdruk in kern lager dan omgeving.*
- *de wind rond een lagedrukgebied, draait tegen de wijzers van de klok in en naar het centrum toe.*
- *tevens zal er lucht vanuit de lagere luchtlagen omhoog gevoerd worden.*



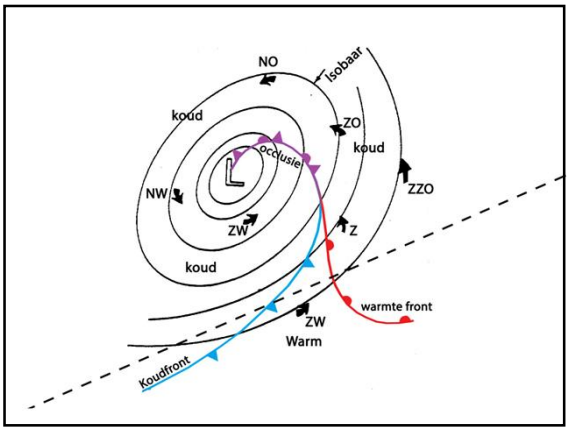


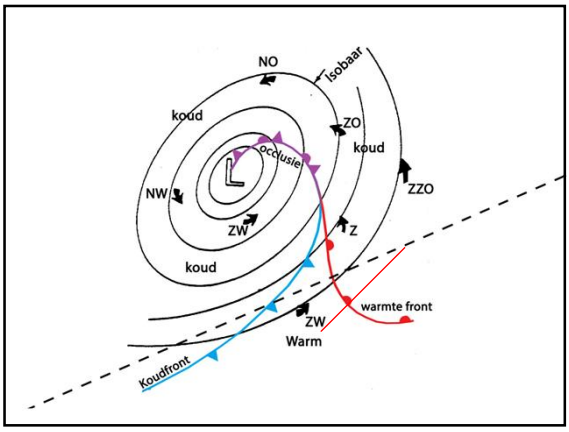
PAUSE

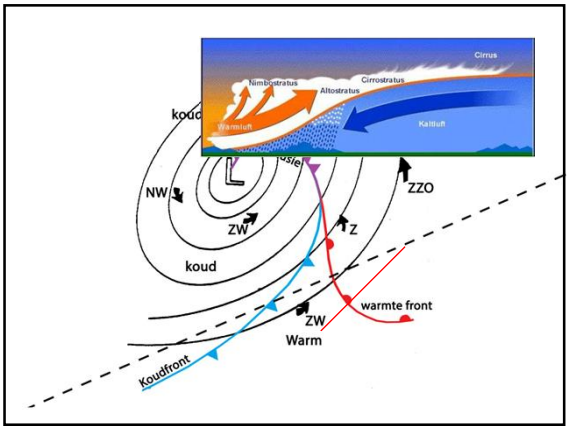


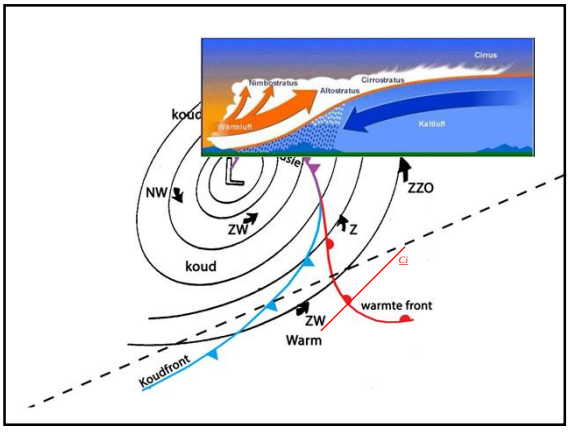
PAUSE

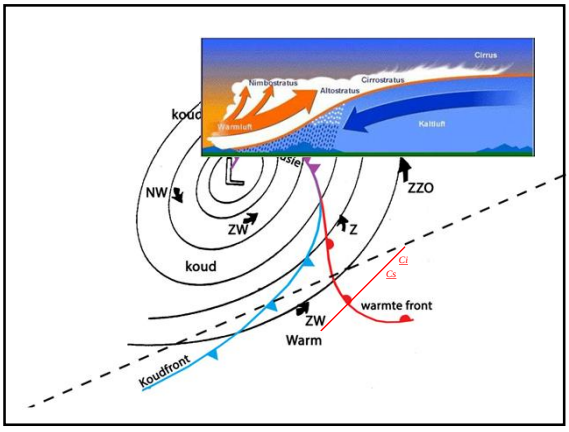


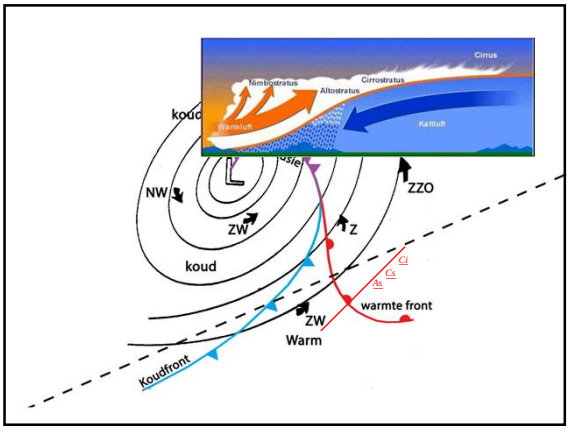

NO
Isobaar
koud
ZO
koud
occlusie
NW
ZZO
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

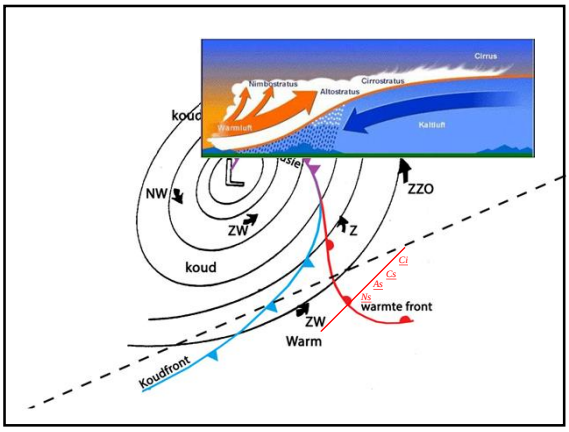

NO
Isobaar
koud
ZO
koud
occlusie
NW
ZZO
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

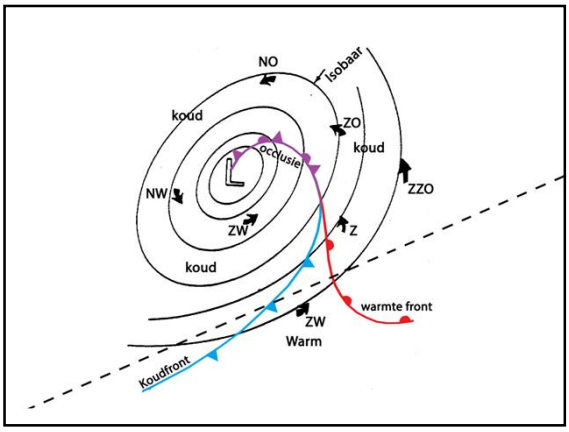

Cirrus
Nimbostratus
Cirrostratus
Altostratus
Warmluft
Koudlucht
koud
NW
ZZO
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

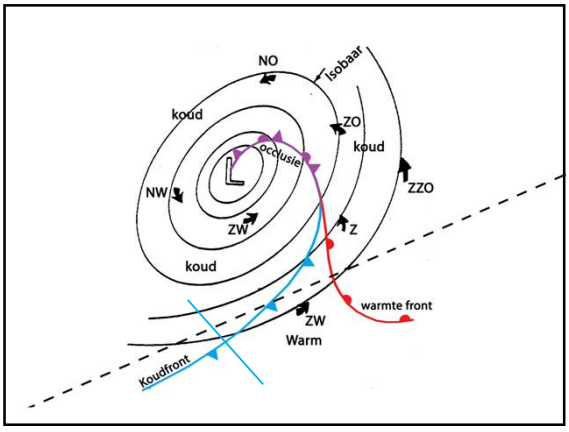

Cirrus
Nimbostratus
Cirrostratus
Altostratus
Warmluft
Koudlucht
koud
NW
ZZO
ZW
Z
Ci
koud
warmte front
ZW
Warm
Koudfront

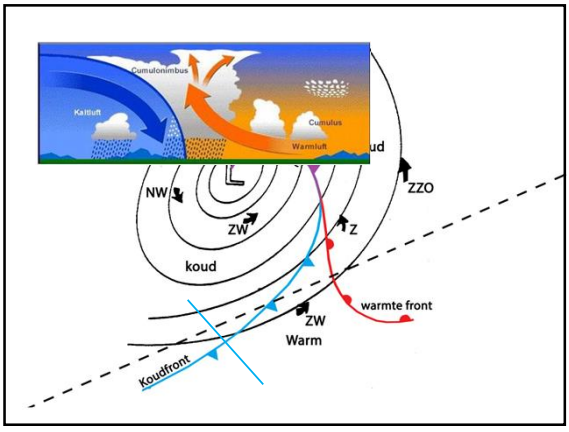

Cirrus
Nimbostratus
Cirrostratus
Altostratus
Warmluft
Koudlucht
koud
NW
ZZO
ZW
Z
Ci
Cs
koud
warmte front
ZW
Warm
Koudfront

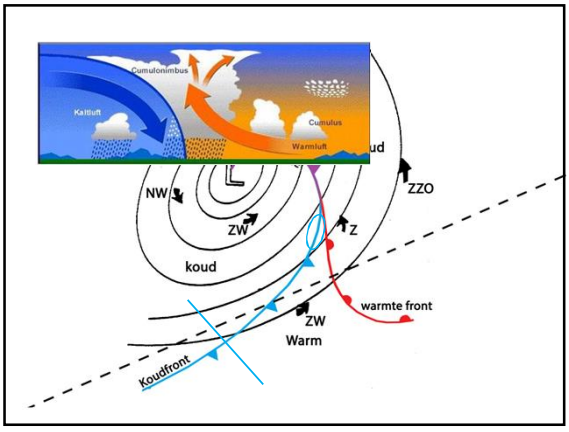

Cirrus
Nimbostratus
Cirrostratus
Altostratus
Warmluft
Koudlucht
koud
NW
ZZO
ZW
Z
Ci
Cs
As
koud
warmte front
ZW
Warm
Koudfront

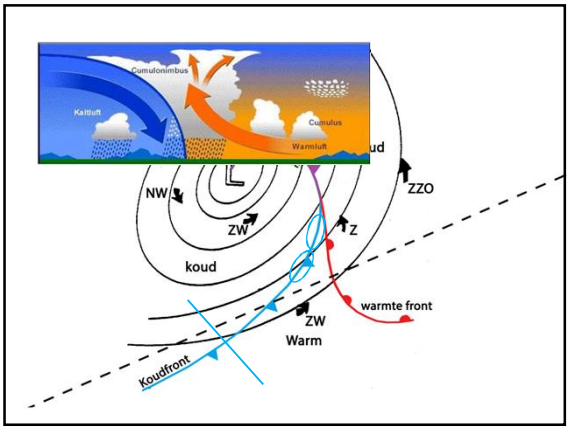

Cirrus
Nimbostratus
Cirrostratus
Altostratus
Warmlucht
Koudlucht
koud
NW
ZW
Z
ZZO
koud
Ci
Cs
As
Ns
warmte front
ZW
Warm
Koudfront

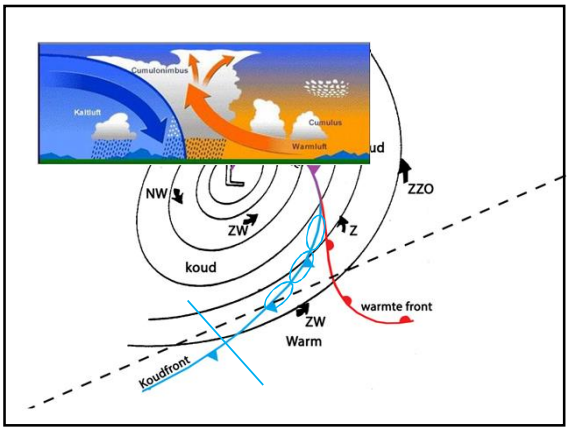

NO
Isobaar
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ZO
koud
Occlusie
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ZW
Warm
Koudfront

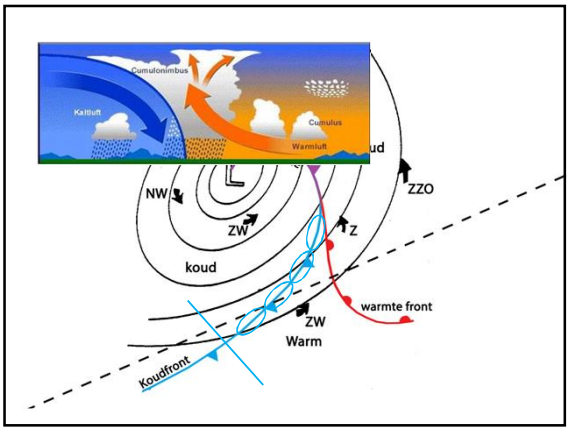

NO
Isobaar
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ZO
koud
Occlusie
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ZW
Warm
Koudfront

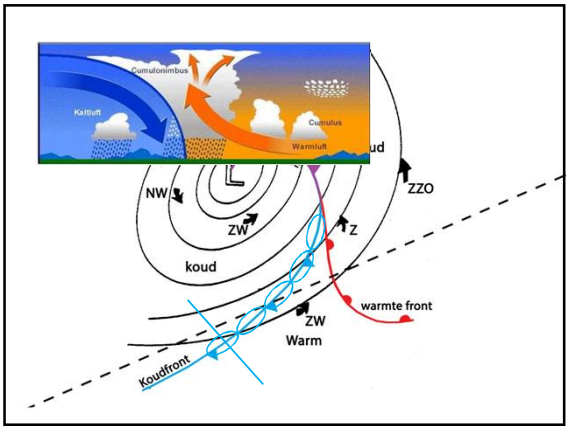

Cumulonimbus
Koudlucht
Cumulus
Warmlucht
NW
ZW
Z
ZZO
koud
warmte front
ZW
Warm
Koudfront

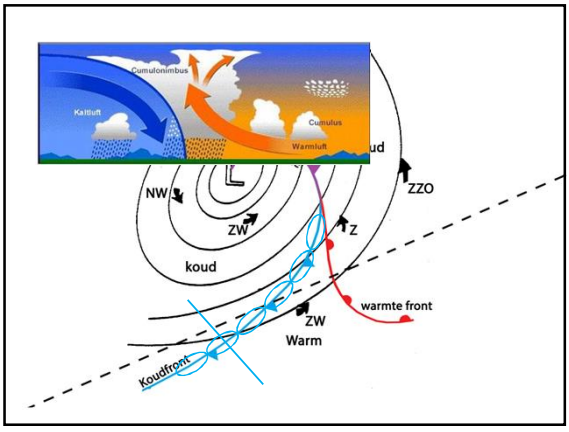

Cumulonimbus
Koudlucht
Cumulus
Warmlucht
NW
ZW
Z
ZZO
koud
warmte front
ZW
Warm
Koudfront

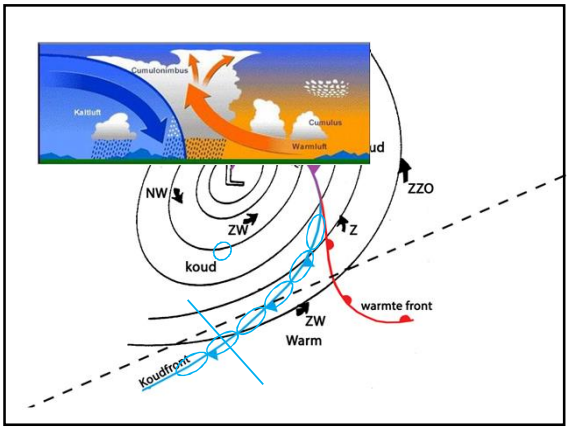

Cumulonimbus
Koudlucht
Cumulus
Warmlucht
NW
ZW
Z
ZZO
koud
warmte front
ZW
Warm
Koudfront

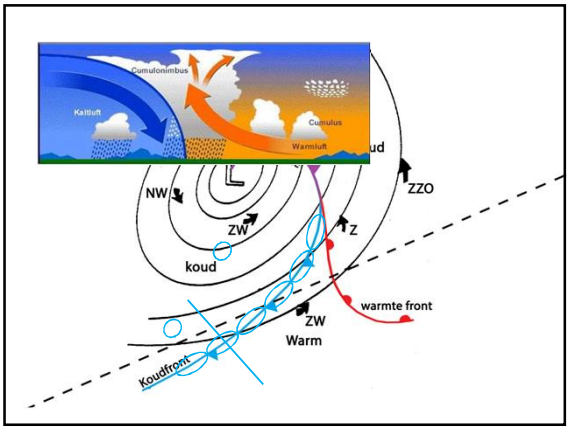

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ud
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

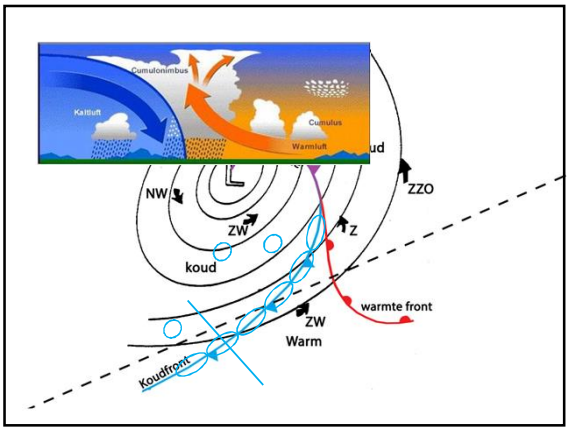

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ud
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

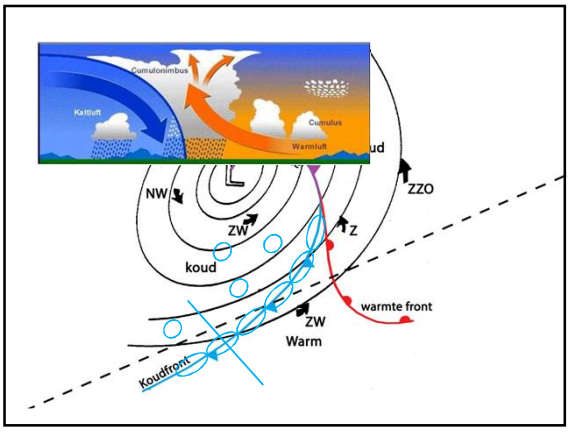

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ud
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

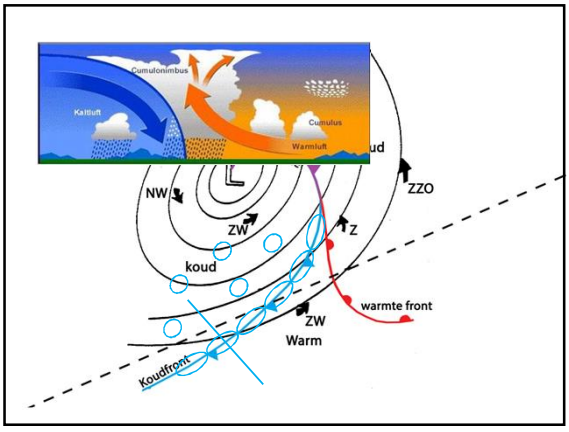

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ud
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

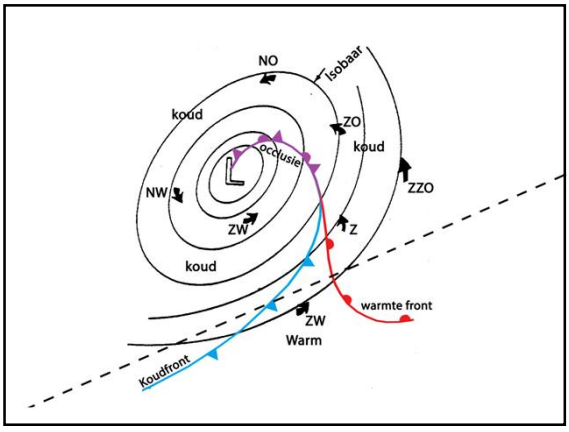

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ud
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

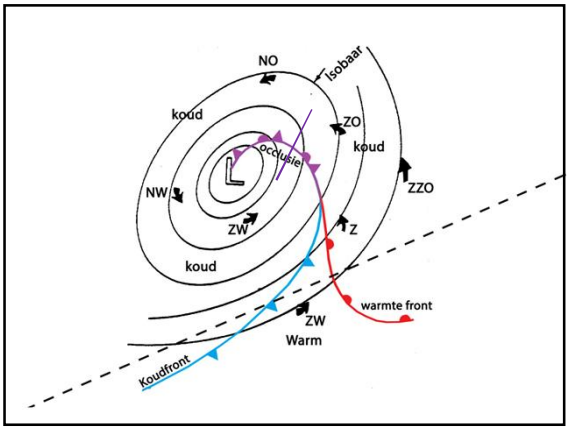

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ud
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

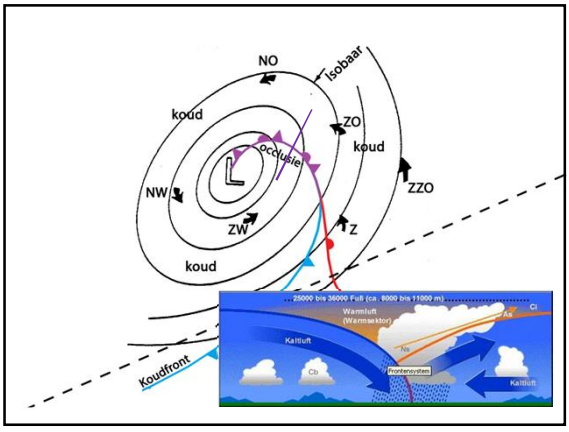

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

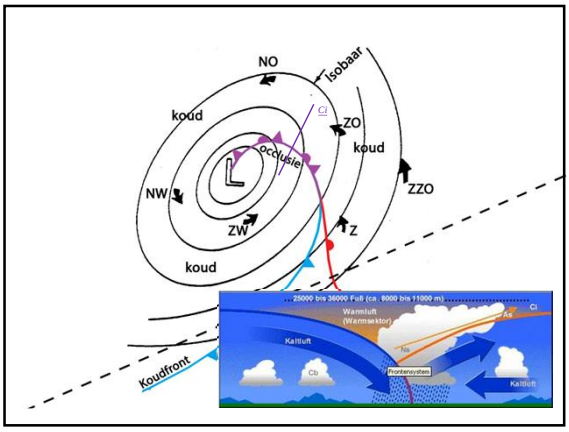

Cumulonimbus
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Cumulus
Warmluft
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

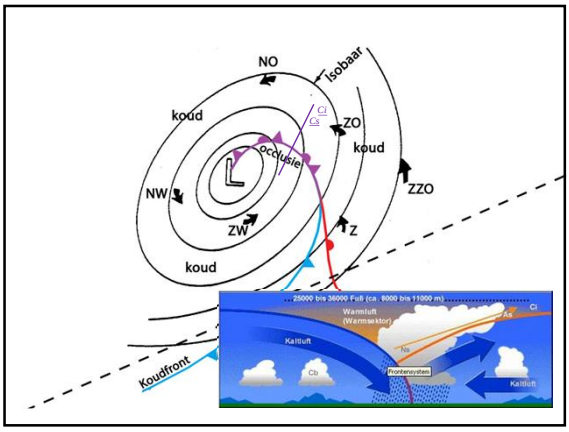

Cumulonimbus
Kaltluft
Cumulus
Warmluft
ZZO
NW
ZW
Z
koud
warmte front
ZW
Warm
Koudfront

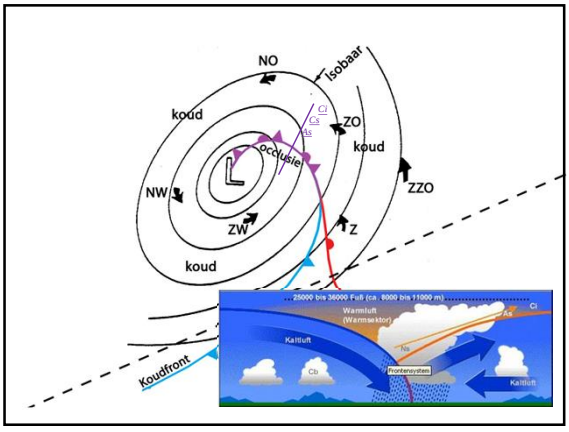

NO
Isobaar
koud
ZO
okclusie
NW
ZW
Z
ZZO
koud
warmte front
ZW
Warm
Koudfront

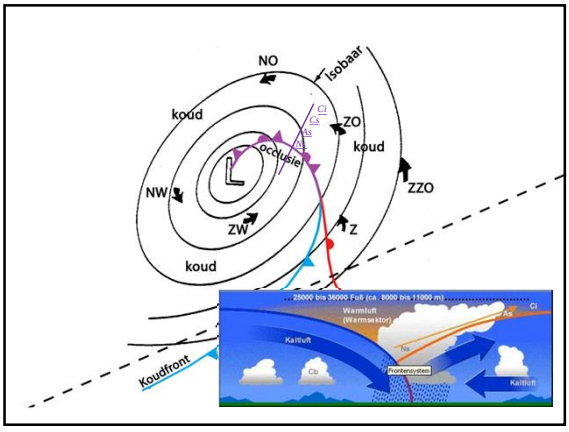

NO
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ZO
okclusie
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NW
ZW
Z
ZZO
koud
warmte front
ZW
Warm
Koudfront

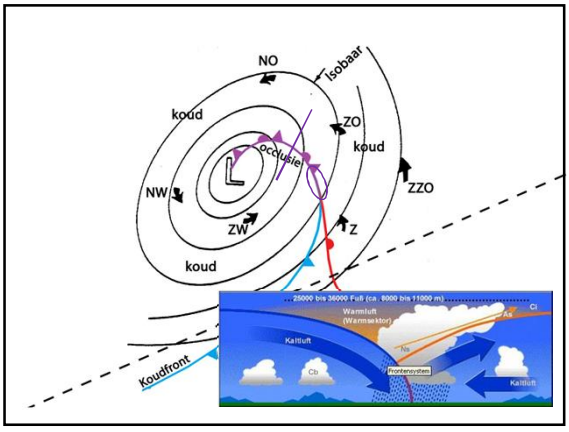

NO
Isobaar
koud
ZO
okclusie
koud
NW
ZW
Z
ZZO
koud
Warmluft
(Warmsektor)
Kaltluft
Cb
Niederschlag
Kaltluft
Koudfront

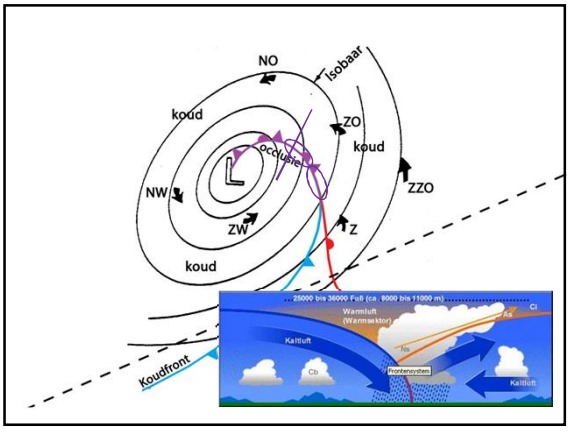

NO
Isobaar
koud
Ci
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

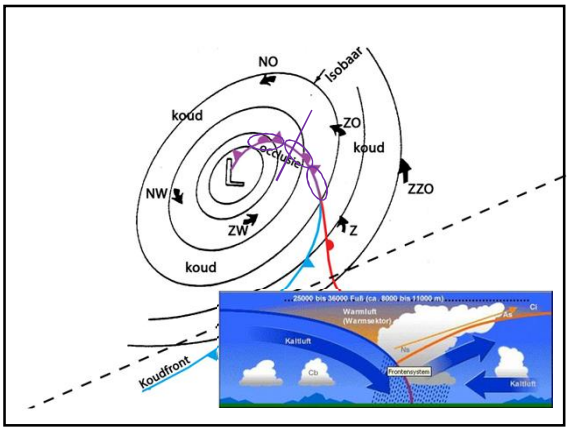

NO
Isobaar
koud
Ci
Cs
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

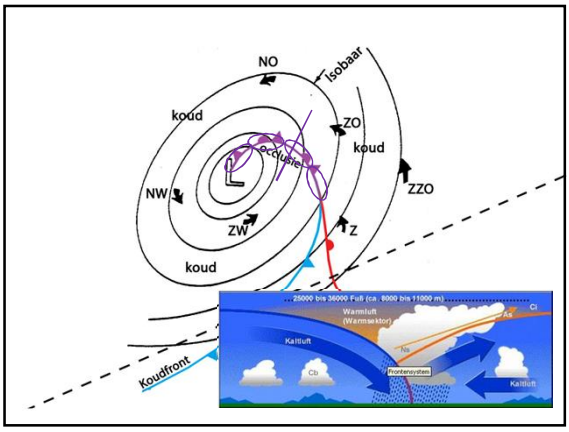

NO
Isobaar
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Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

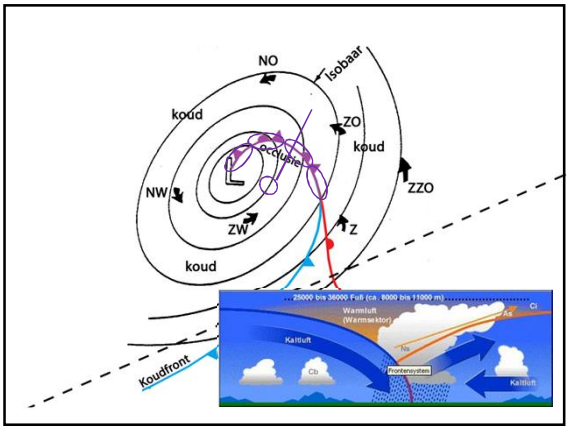

NO
Isobaar
koud
Ci
Cs
As
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

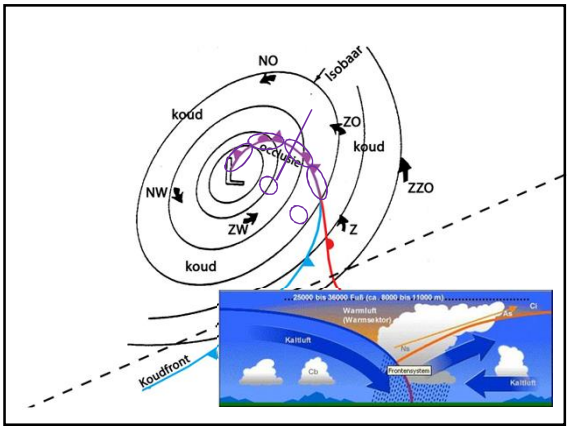

NO
Isobaar
koud
ZO
koud
Okklusion
NW
ZZO
ZW
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koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

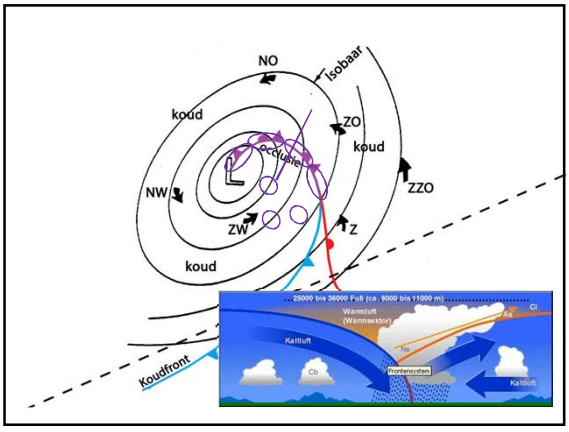

NO
Isobaar
koud
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koud
Okklusion
NW
ZZO
ZW
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koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

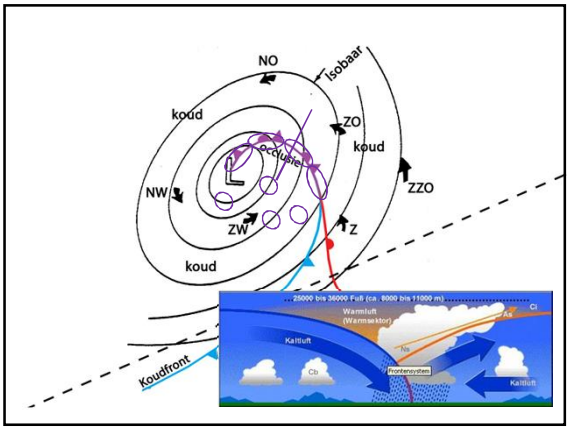

NO
Isobaar
koud
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

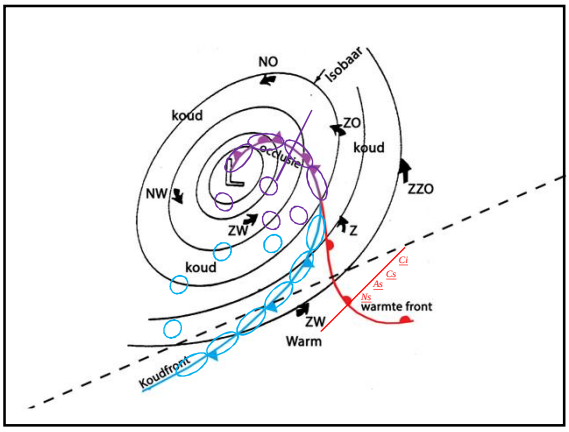

NO
Isobaar
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ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft


NO
Isobaar
koud
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

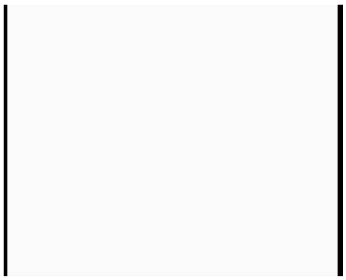

NO
Isobaar
koud
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft


NO
Isobaar
koud
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft


NO
Isobaar
koud
ZO
koud
Okklusion
NW
ZZO
ZW
Z
koud
Koudfront
25000 bis 36000 Fuß (ca. 8000 bis 11000 m)
Warmluft
(Warmsektor)
Ci
As
Kaltluft
Ns
Cb
Frontensystem
Kaltluft

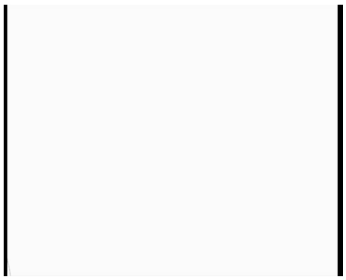


PASSAGE LAGEDRUKGEBIED



PASSAGE TEN NOORDEN LANGS

PASSAGE LAGEDRUKGEBIED



PASSAGE RECHT OVER

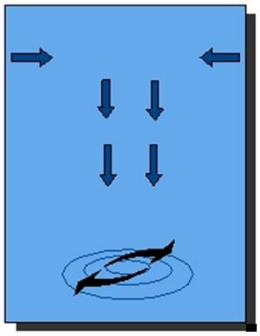
PASSAGE LAGEDRUKGEBIED

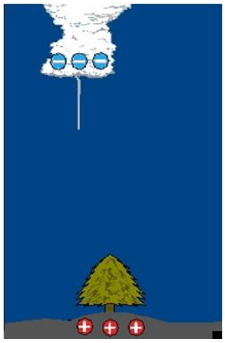


PASSAGE TEN ZUIDEN LANGS

HOGEDRUKGEBIED

- *luchtdruk in kern hoger dan omgeving.*
- *geen fronten.*
- *de wind rond een hogedrukgebied, draait met de wijzers van de klok mee en van het centrum af.*
- *tevens zal er lucht vanuit de hogere luchtlagen aangevoerd worden.*





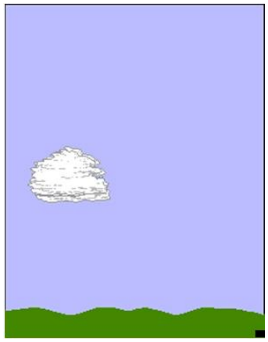
ONWEER

- *warmte onweer*
- *frontaal onweer*

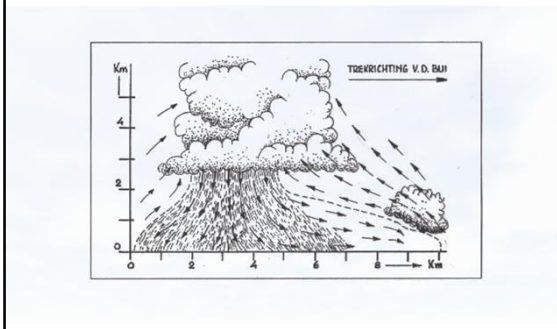


BUIEN

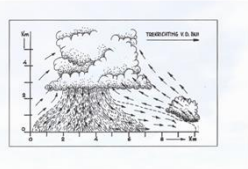
zijn gevolg van Omhoog gerichte luchtstroming, ontstaan door plaatselijke verwarming of geforceerde stijging

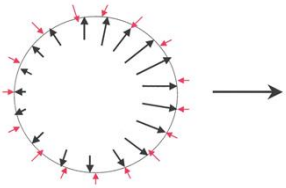


INVLOED BUI OP MOLEN



INVLOED BUI OP MOLEN



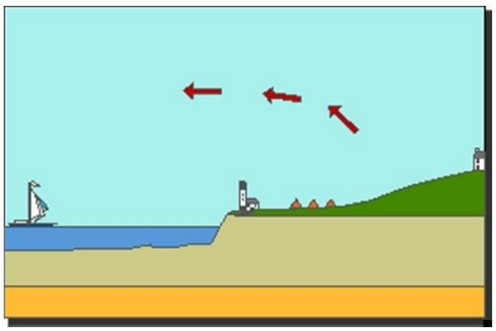


INVLOED BUI OP MOLEN

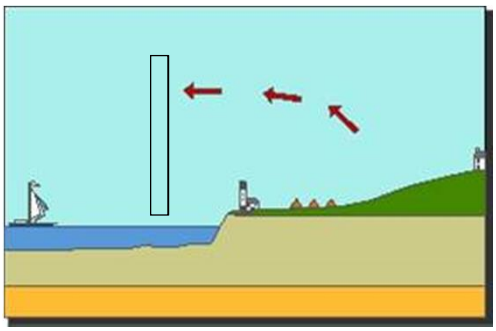
INVLOED BUI OP MOLEN

INVLOED BUI OP MOLEN

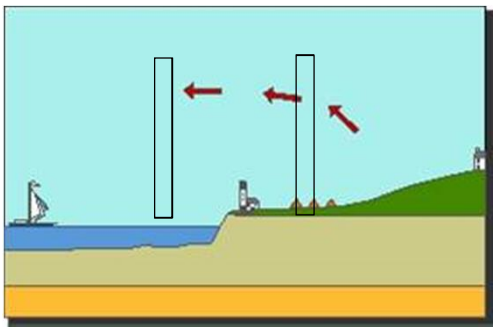
ZEEWIND



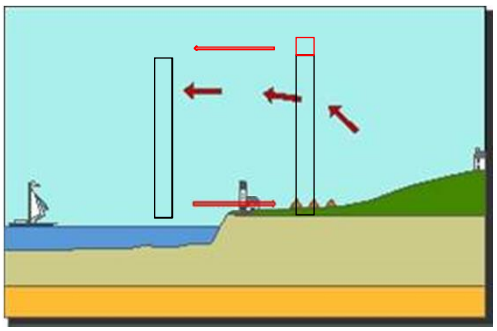
ZEEWIND



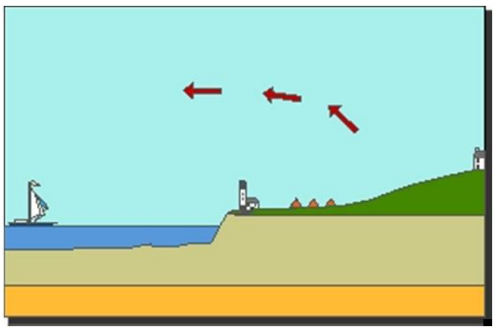
ZEEWIND



ZEEWIND



ZEEWIND



WOLKEN



- *Wat is een wolk ?*
- *Ontstaanswijze*
- *wolkengeslachten*

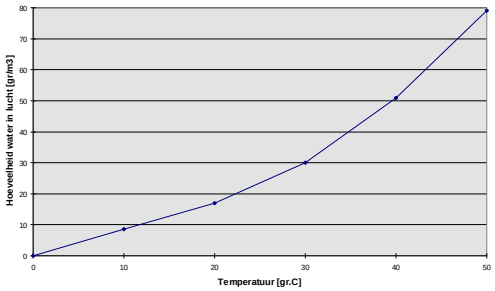
LUCHT BEVAT WATER !

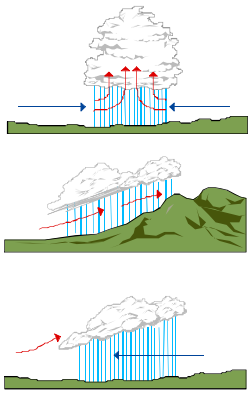


REGEN



MIST



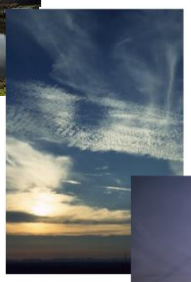


WOLKENGESLACHTEN

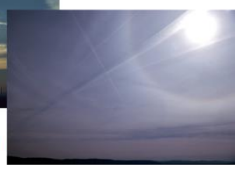
Hoge wolken 5 - 13 km



Cirrus (Ci)



Cirrocumulus (Cc)



Cirrostratus (Cs)

WOLKENGESLACHTEN

Middelhoge wolken 2-7 km



Altocumulus (Ac)



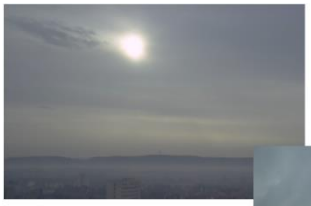
Ac-floccus



Ac-castellanus

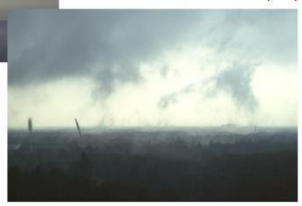
WOLKENGESLACHTEN

Middelhoge wolken 2-7 km



Nimbostratus (Ns)

Altostratus (As)



WOLKENGESLACHTEN

Lage wolken 0 - 2 km



Stratocumulus (Sc)

Stratus (St)



WOLKENGESLACHTEN

Cumulus (Cu) humilus

Lage wolken 0 - 2 km



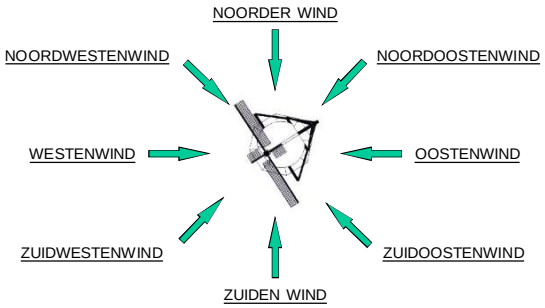


Cumulus (Cu) congestus



Cumulonimbus (Cb)

WINDREGELS



INVLOEDEN WEER OP MOLEN

- droog weer: losse wiggen
- vriezen: gietijzeren as
- buien: stoppen en vastleggen
- onweer: bliksemafleider
- ijzel: zeilen als planken, spiegel glad

EINDE

Petro van Doorne

