



**Royal Netherlands
Meteorological Institute**
*Ministry of Transport, Public Works
and Water Management*

Decision Support Forecast for the Intervention of Transshipment Actions at Amsterdam Harbour.

Marcel Bult
KNMI



**Royal Netherlands
Meteorological Institute**
*Ministry of Transport, Public Works
and Water Management*

Content

1. The Immediate Cause
2. The Forecast
3. Future developments



1. The Immediate Cause

Complaints about Bad Smells



1. The Immediate Cause

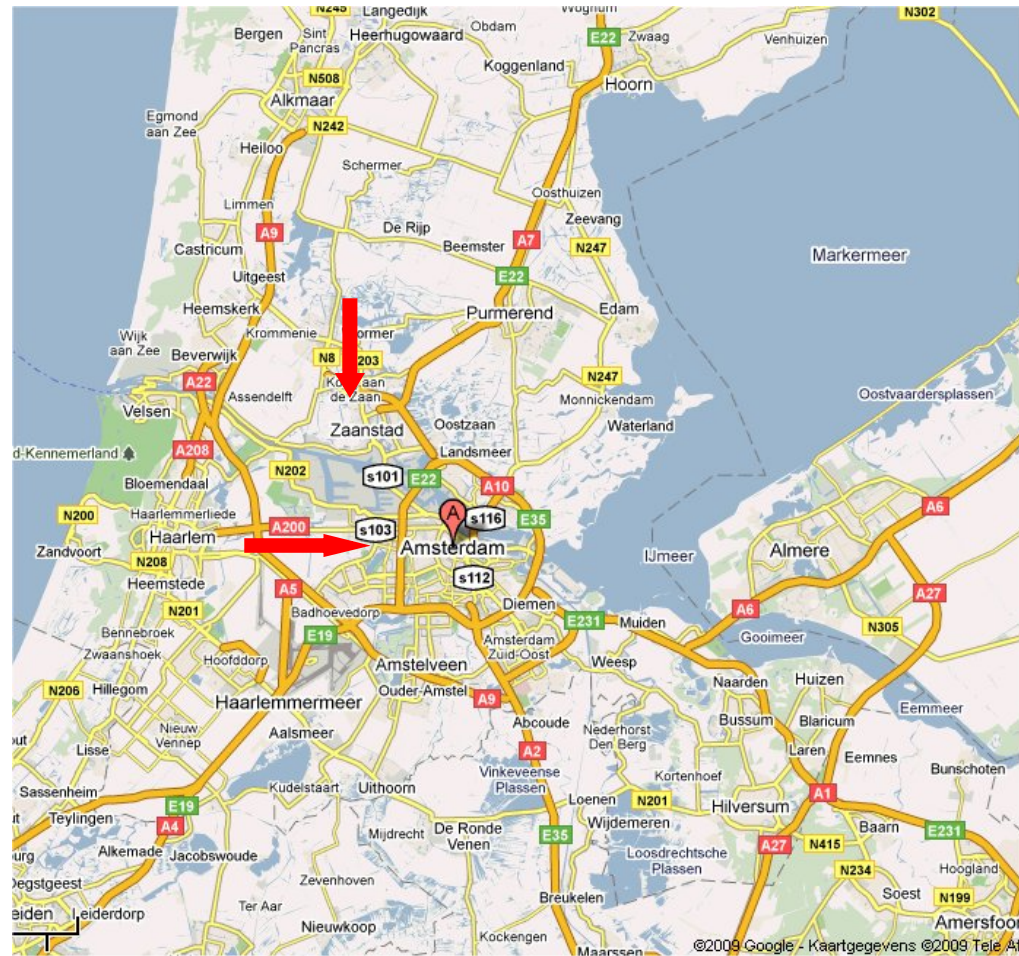
Complaints about Bad Smells
Zaanstad (near Amsterdam)





1. The Immediate Cause

Complaints about Bad Smells
Zaanstad (near Amsterdam)





Initial Investigation

Weather Parameters

- Winddirection (S'ly)
- Windspeed (low)
- Stability of the
lower atmosphere
(stable)

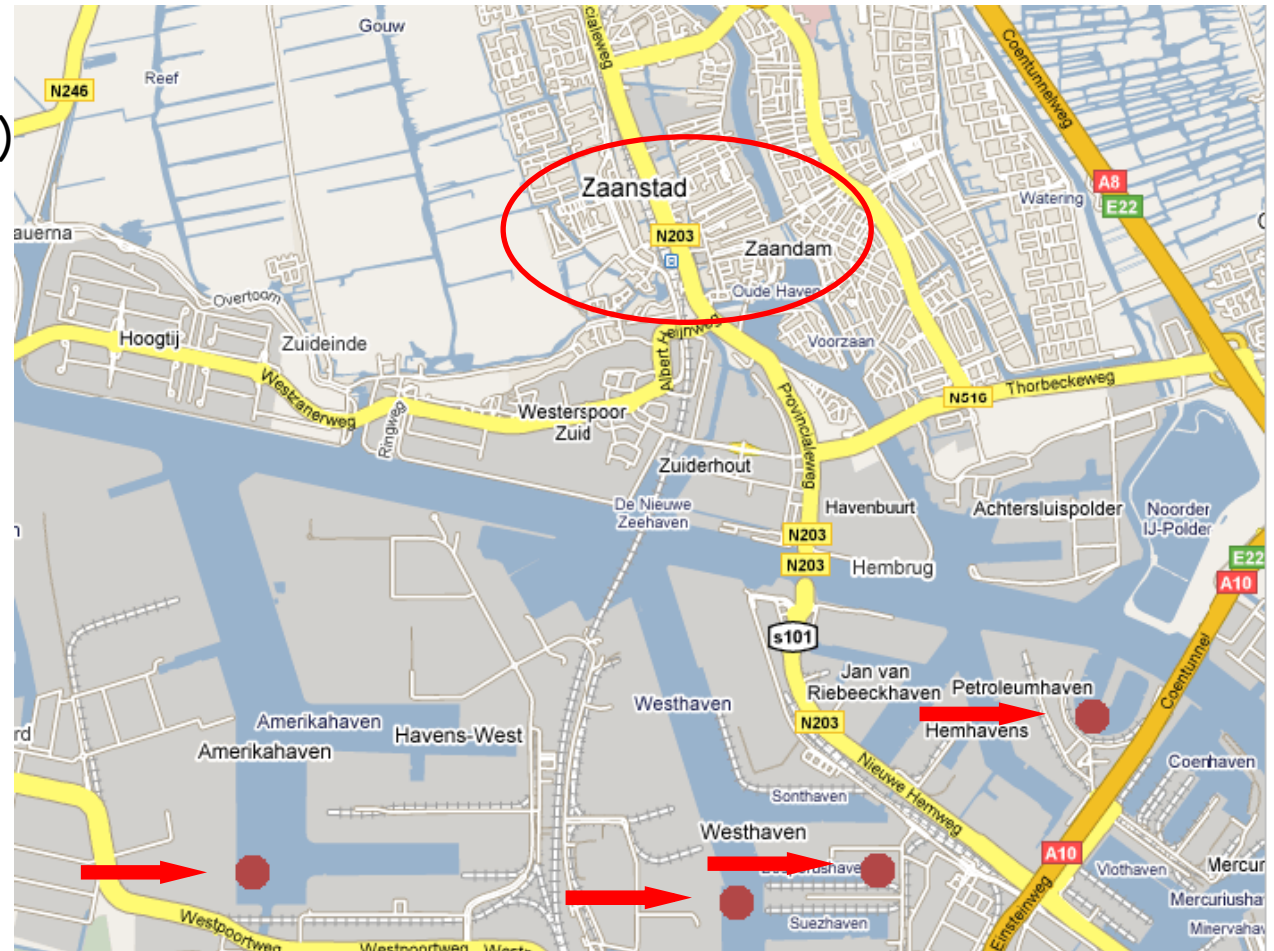


Initial Investigation

Weather Parameters

- Winddirection (S'ly)
- Windspeed (low)
- Stability of the lower atmosphere (stable)

- 4 transshipping companies



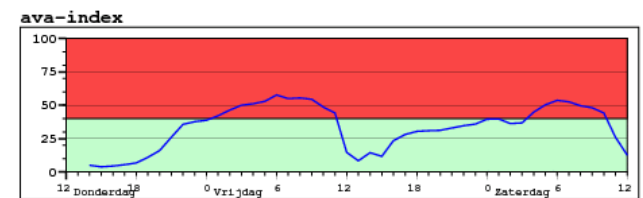
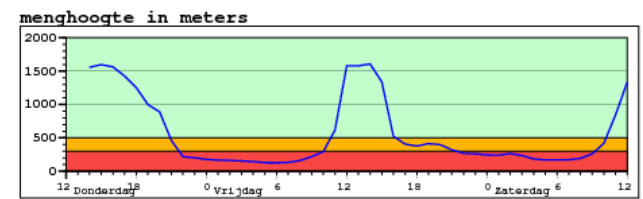
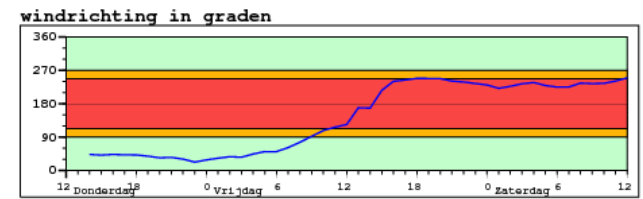
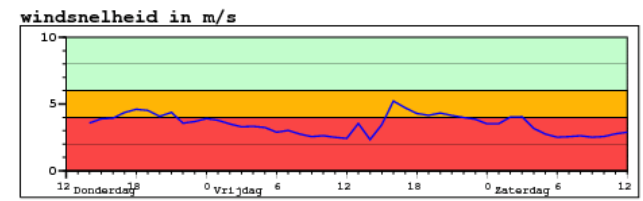
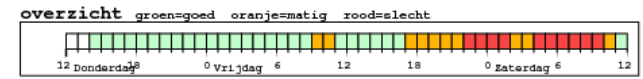


2. The Forecast

Direct Model Output (HiRLAM)
Hourly Basis
4 Times per Day

Verwachting voor het westelijk Havengebied Amsterdam

opgesteld op Donderdag 02 Juli 14 uur LT



De ava-index voor Vrijdag is 30

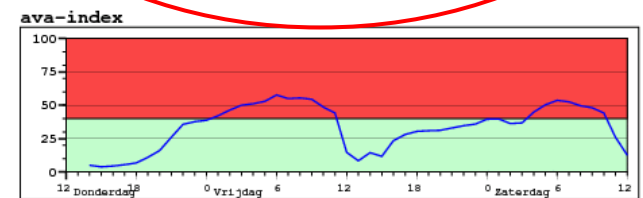
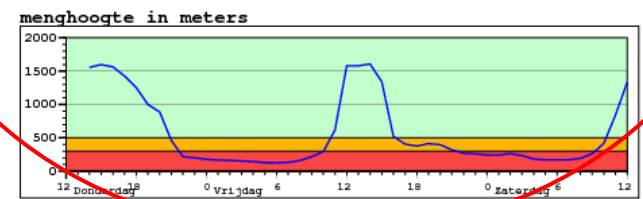
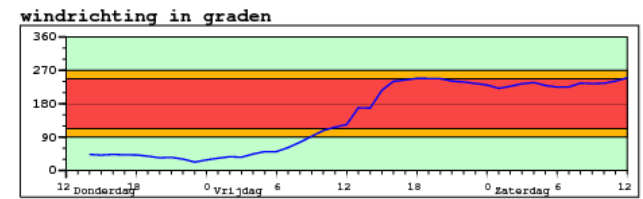
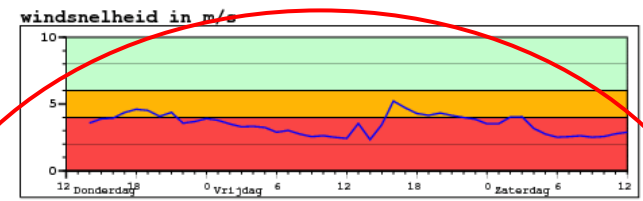
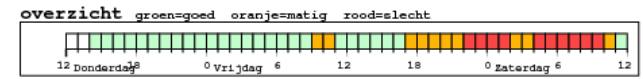


2. The Forecast

Direct Model Output (HiRLAM)
Hourly Basis
4 Times per Day
Weather Parameters

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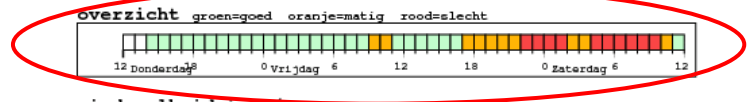


2. The Forecast

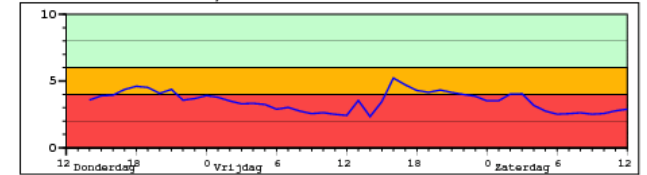
- Direct Model Output (HiRLAM)
- Hourly Basis
- 4 Times per Day
- Weather Parameters
- Decision Summary

Verwachting voor het westelijk Havengebied Amsterdam

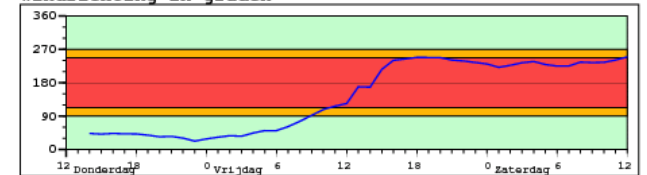
opgesteld op Donderdag 02 Juli 14 uur LT



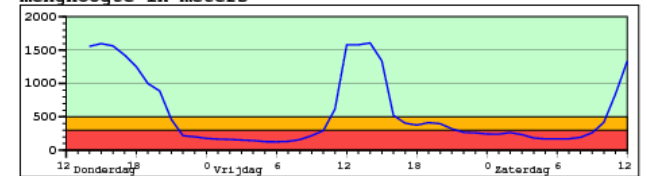
windsnelheid in m/s



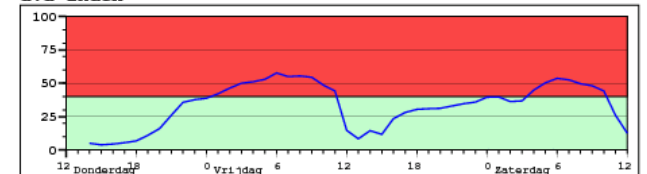
windrichting in graden



menghoogte in meters



ava-index



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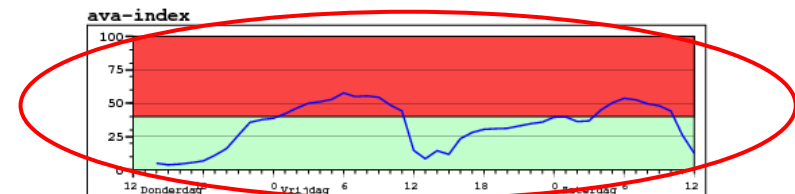
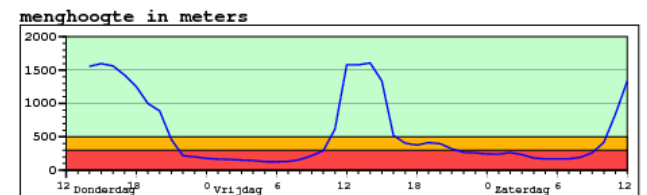
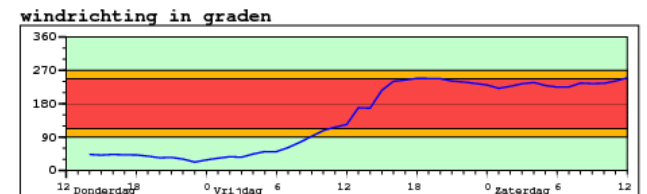
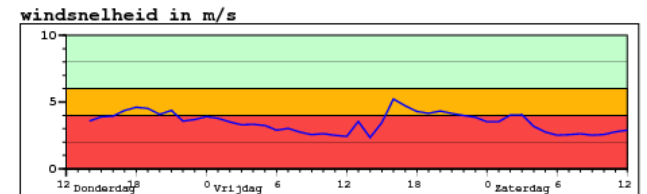
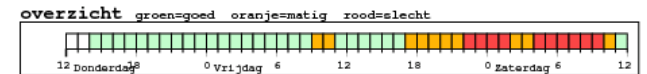


2. The Forecast

- Direct Model Output (HiRLAM)
- Hourly Basis
- 4 Times per Day
- Weather Parameters
- Decision Summary
- AVA-Index

Verwachting voor het westelijk Havengebied Amsterdam

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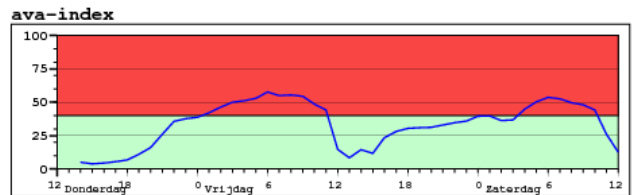
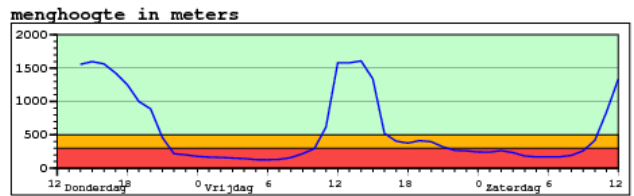
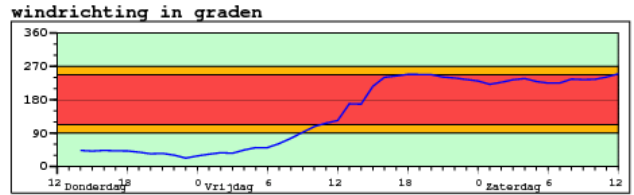
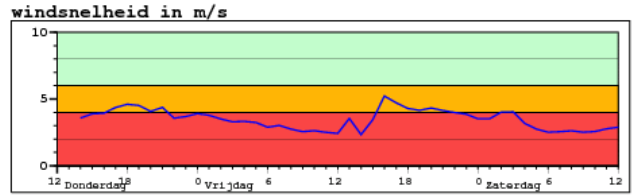
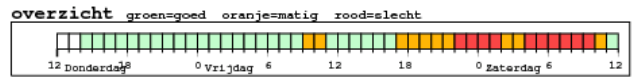


Criteria per Weather Parameter (Set by Customer)

- Wind Speed (WS) ≤ 4 m/s
- Wind Direction (WD) $\rightarrow 112,5 \leq WD \leq 247,5$
- Mixing Layer Height (MLH) ≤ 300 meter

Verwachting voor het westelijk Havengebied Amsterdam

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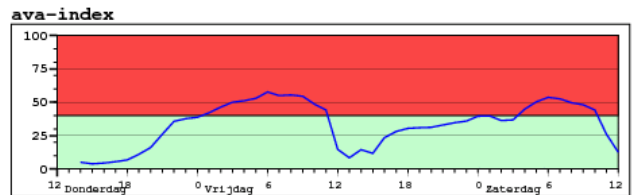
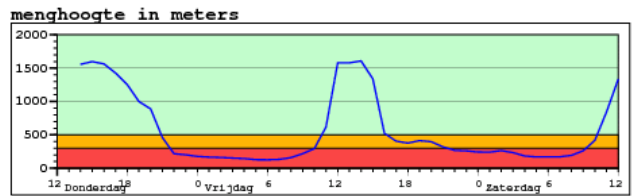
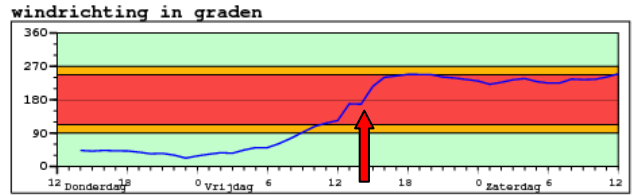
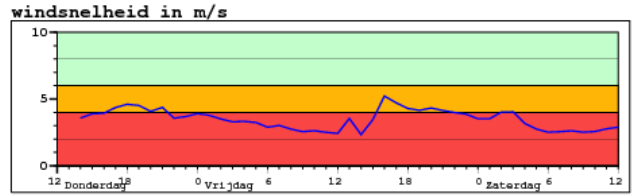
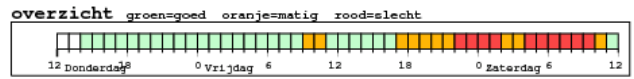


Criteria per Weather Parameter (Set by Customer)

- Wind Speed (WS) ≤ 4 m/s
- Wind Direction (WD) $\rightarrow 112,5 \leq WD \leq 247,5$
- Mixing Layer Height (MLH) ≤ 300 meter

Red when met

Verwachting voor het westelijk Havengebied Amsterdam opgesteld op Donderdag 02 Juli 14 uur LT



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Criteria per Weather Parameter (Set by Customer)

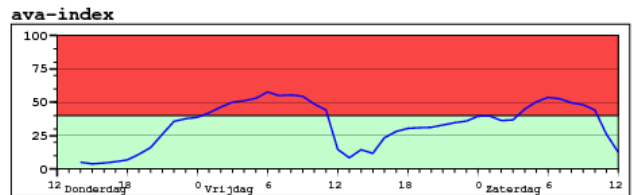
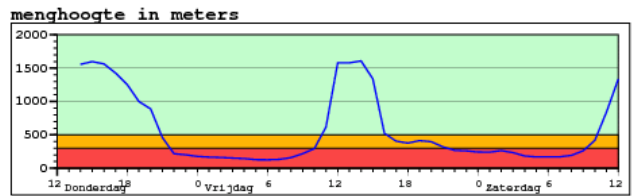
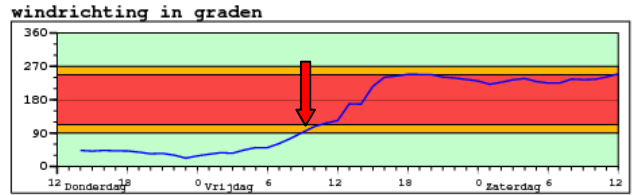
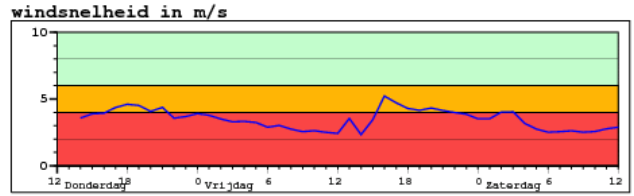
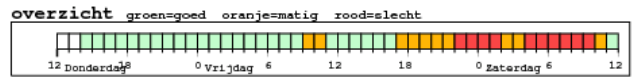
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Red when met

Orange (forecast uncertainties)

Verwachting voor het westelijk Havengebied Amsterdam

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Criteria per Weather Parameter (Set by Customer)

- Wind Speed (WS) ≤ 4 m/s
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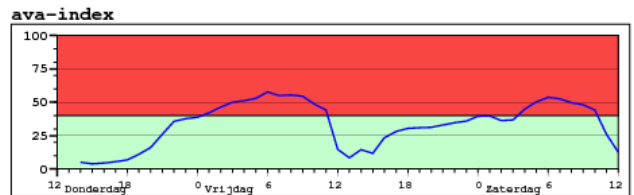
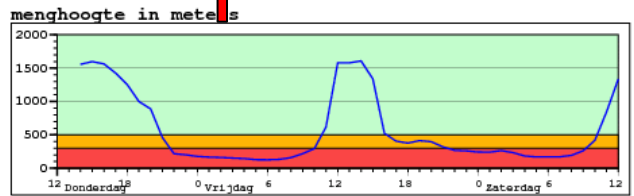
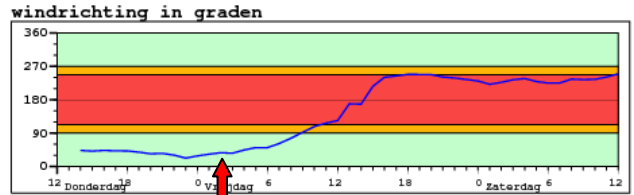
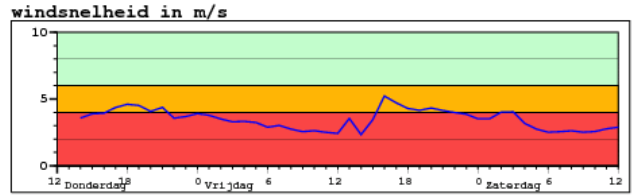
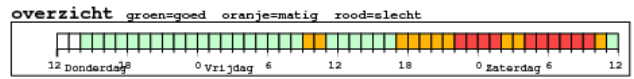
Red when met

Orange (forecast uncertainties)

Green

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Red when met

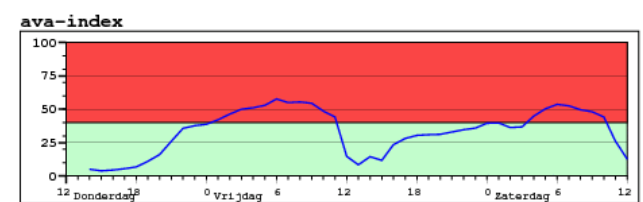
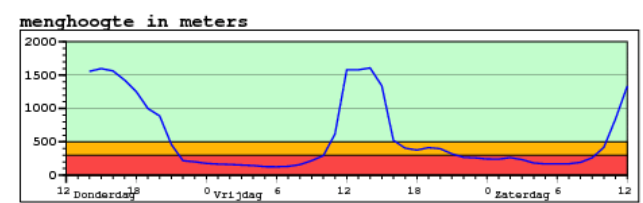
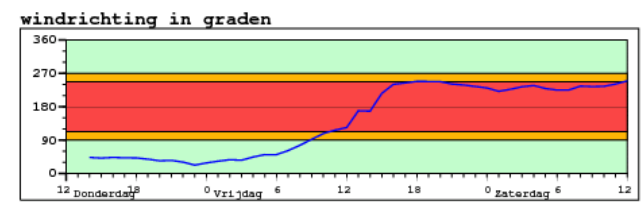
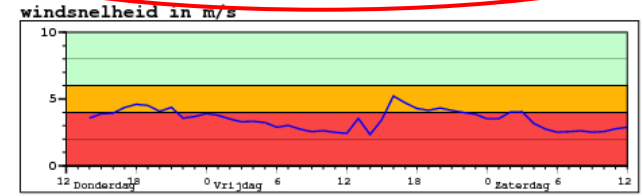
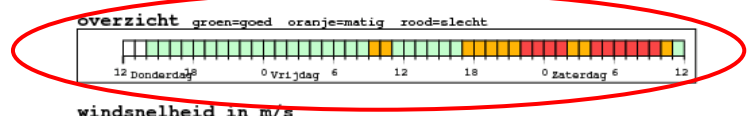
Orange (forecast uncertainties)

Green

Decision Summary

Verwachting voor het westelijk Havengebied Amsterdam

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Criteria per Weather Parameter (Set by Customer)

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Red when met

Orange (forecast uncertainties)

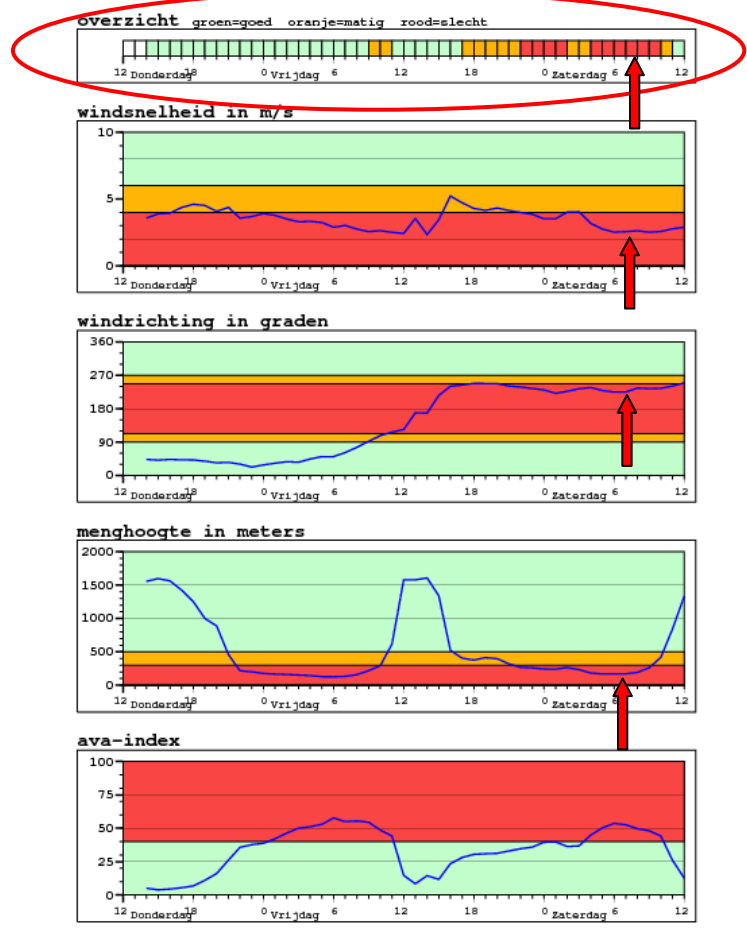
Green

Decision Summary

- Red when WS, WD and MLH are "Red"
"Smelly" complaints are likely

Verwachting voor het westelijk Havengebied Amsterdam

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Criteria per Weather Parameter (Set by Customer)

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Red when met

Orange (forecast uncertainties)

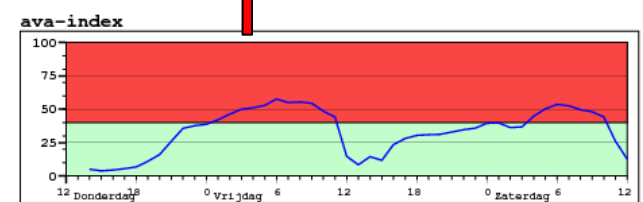
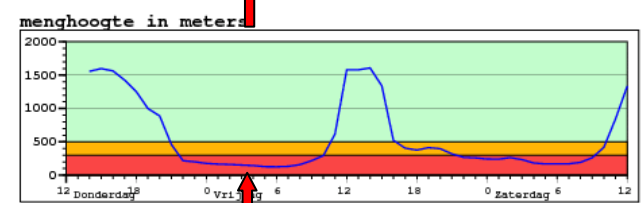
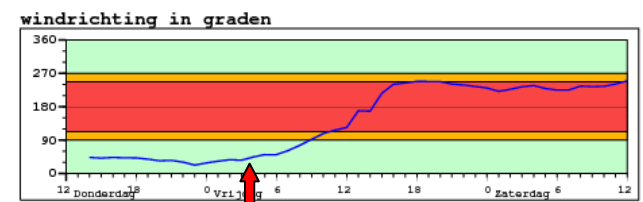
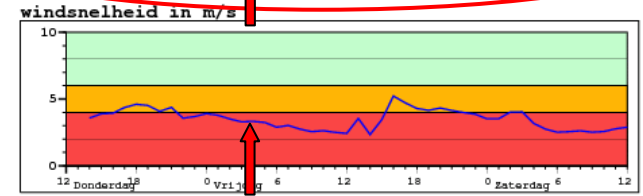
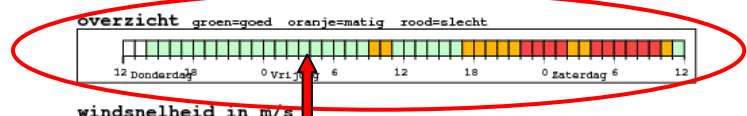
Green

Decision Summary

- Red when WS, WD and MLH are "Red"
"Smelly" complaints are likely
- Green when WS, WD and/or MLH are/is Green
"Complaints" are not very likely

Verwachting voor het westelijk Havengebied Amsterdam

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Criteria per Weather Parameter (Set by Customer)

- Wind Speed (WS) ≤ 4 m/s
- Wind Direction (WD) $\rightarrow 112,50 \leq WD \leq 247,50$
- Mixing Layer Height (MLH) ≤ 300 meter

Red when met

Orange (forecast uncertainties)

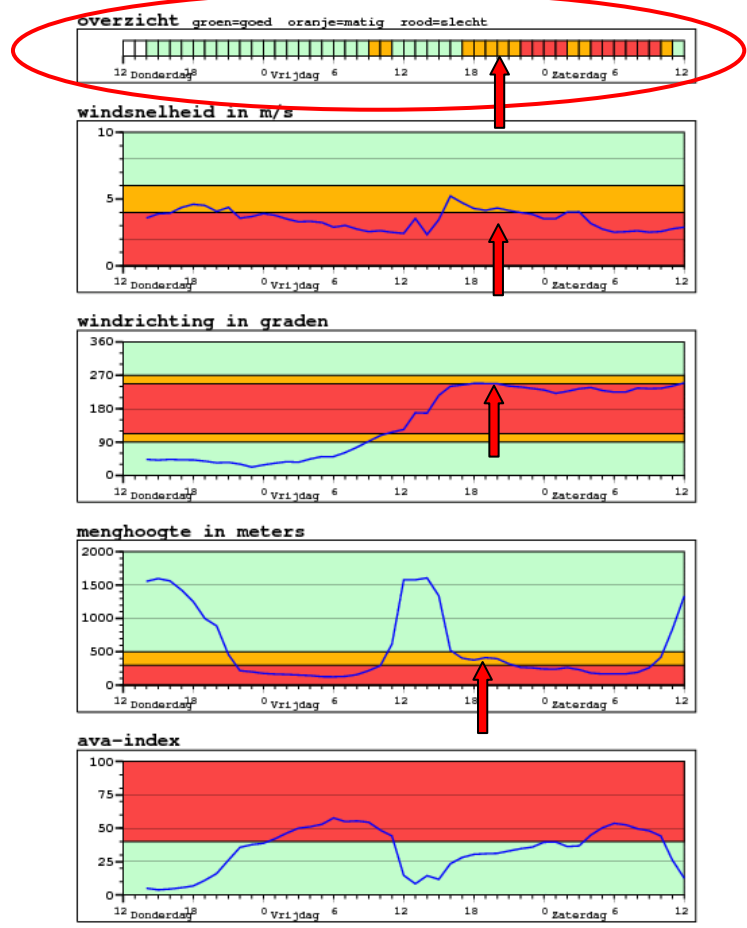
Green

Decision Summary

- Red when WS, WD and MLH are "Red"
"Smelly" complaints are likely
- Green when WS, WD and/or MLH are/is Green
"Complaints" are not very likely
- Orange otherwise
"Complaints" are possible

Verwachting voor het westelijk Havengebied Amsterdam

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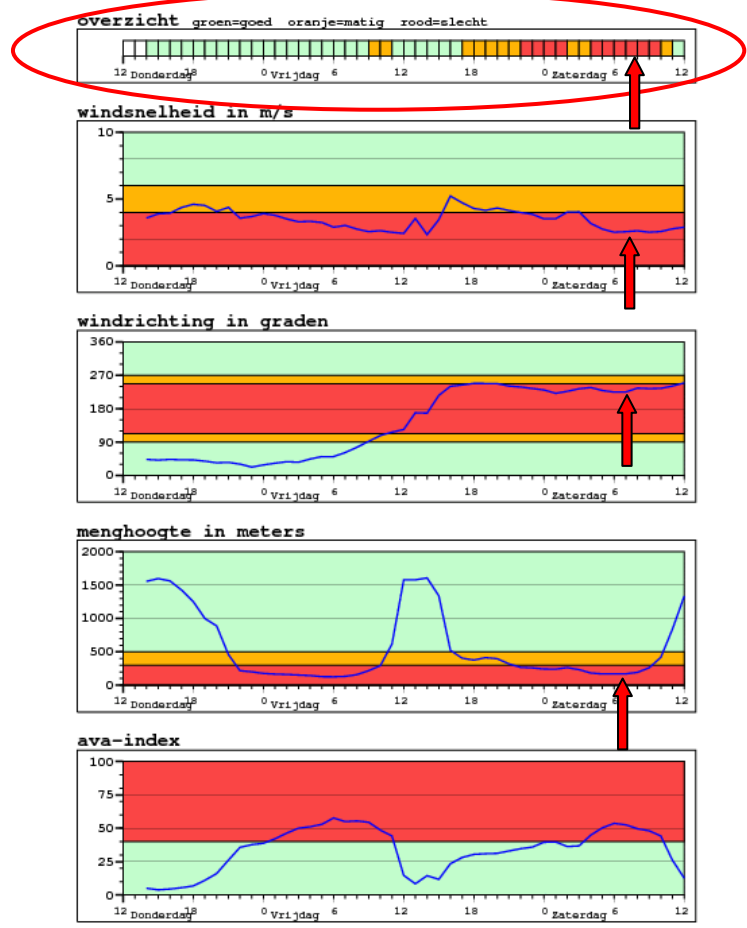


If Decision Summary is Red

- Adverse weather conditions
- Contact between authorities and companies
- Reduce the transhipments
- Or even stopped for a period
- Local authorities may contact Forecaster

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3. Future development

Gain experience

More locations/customers

More parameters

Interactive version



The End