

# Umferð og Umferð og svifryksmengun

**Þróstur Þorsteinsson**  
*Jarðvísindastofnun Háskólans*

Anna Rósa Böðvarsdóttir (*Reykjavíkurborg*)  
Sigurður B. Finnsson (*Umhverfisstofnun*)

# Markmið

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- Sannreyna að  $\text{NO}_x$  sé góður mælikvarði á umferðarpunga
- Meta magn mengunar vegna útblásturs

*Nauðsynleg skref fyrir lokatakmarkið:*

- Búa til líkan til að reikna magn svifryks í andrúmslofti

# NO<sub>x</sub> og umferðarþungi

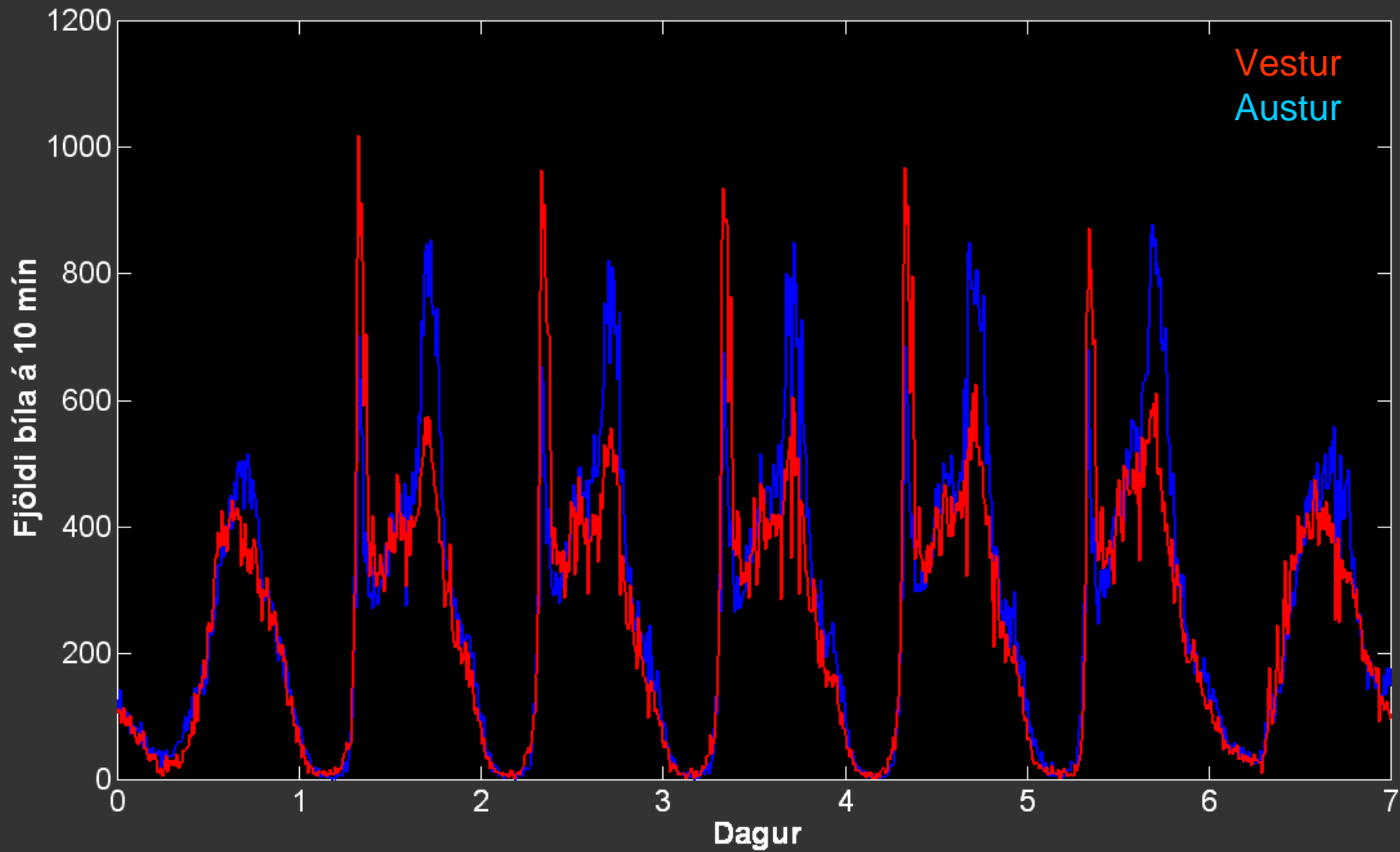
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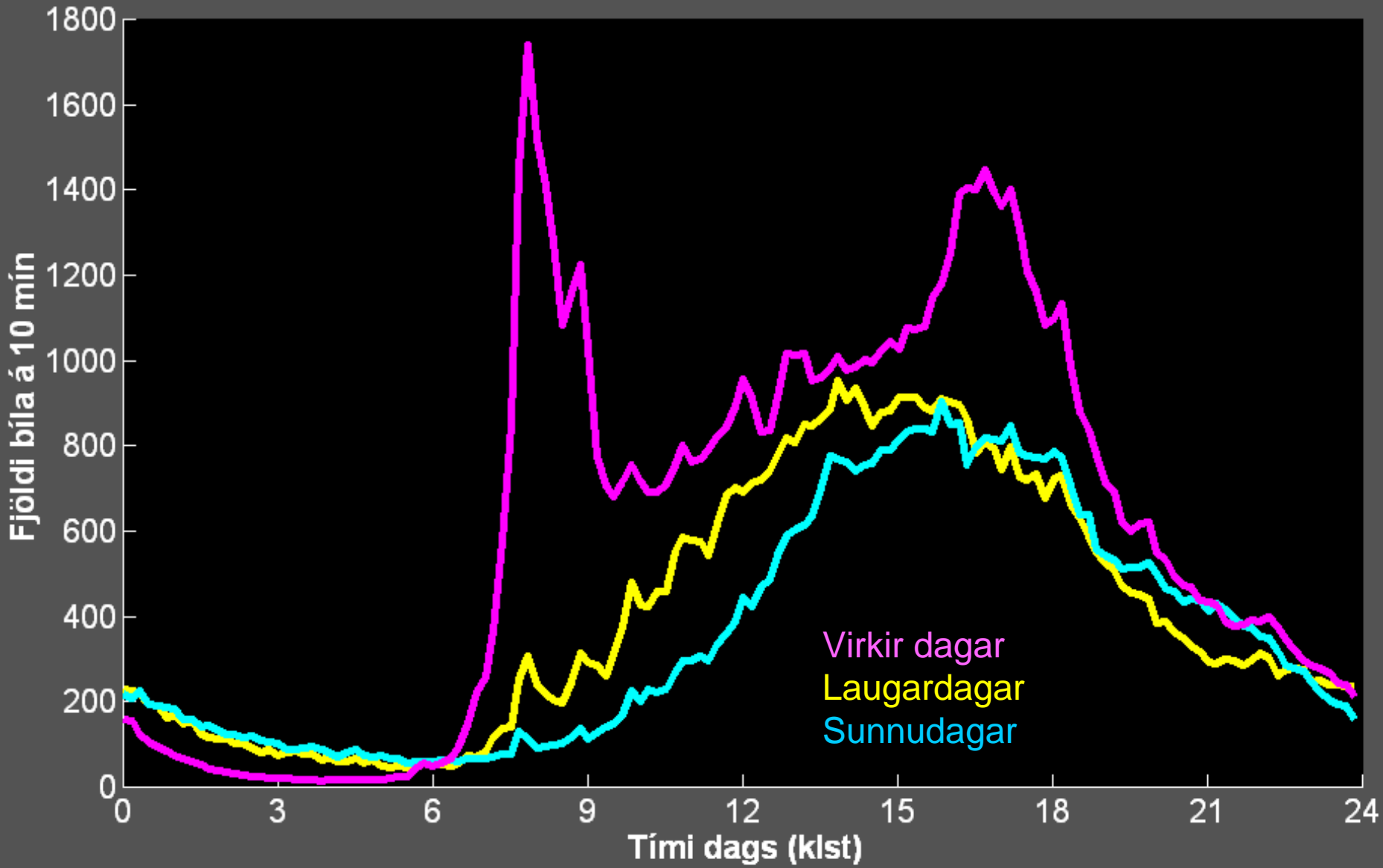
## ■ Þurfum

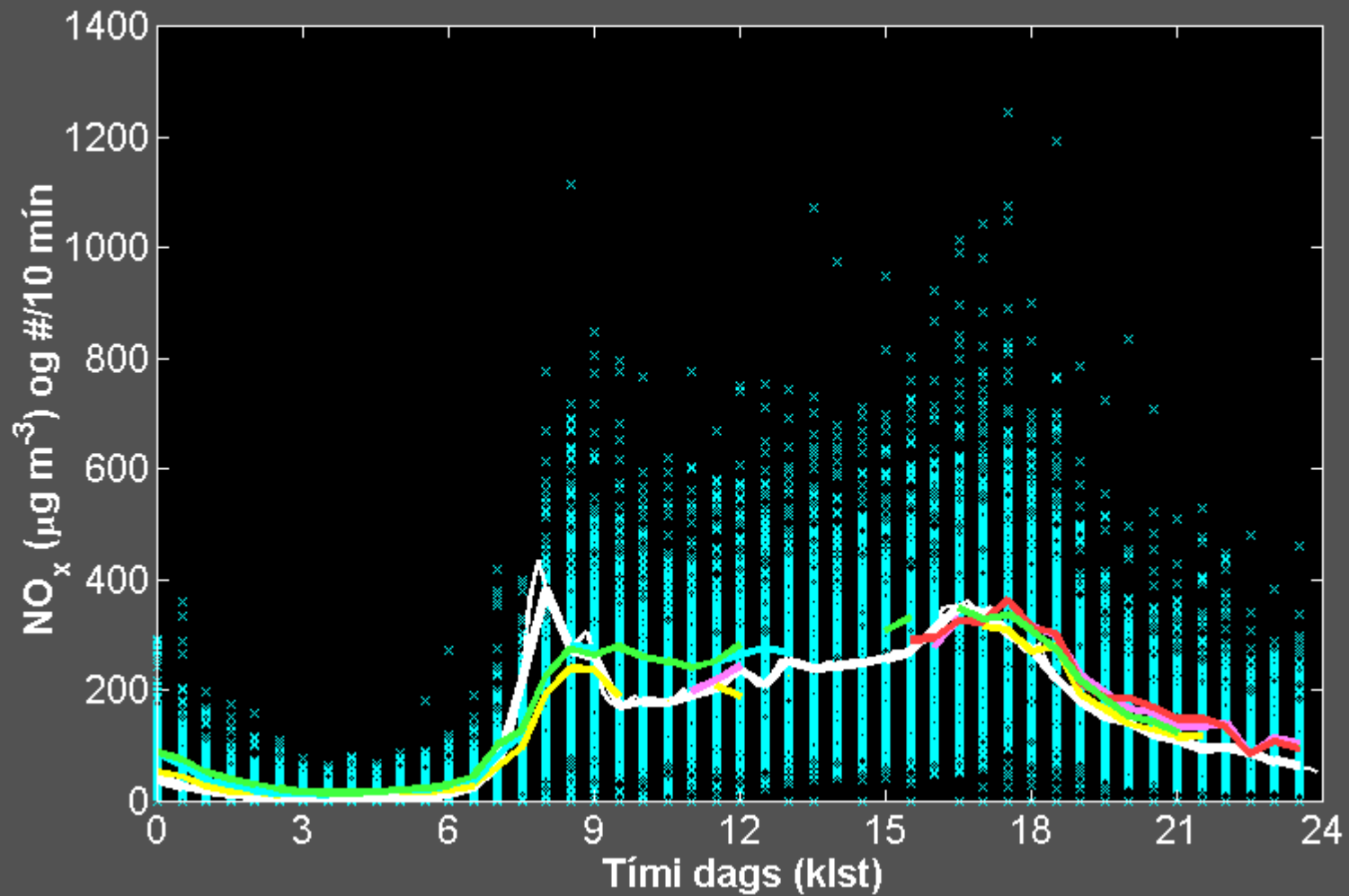
- Upplýsingar um umferðarþunga

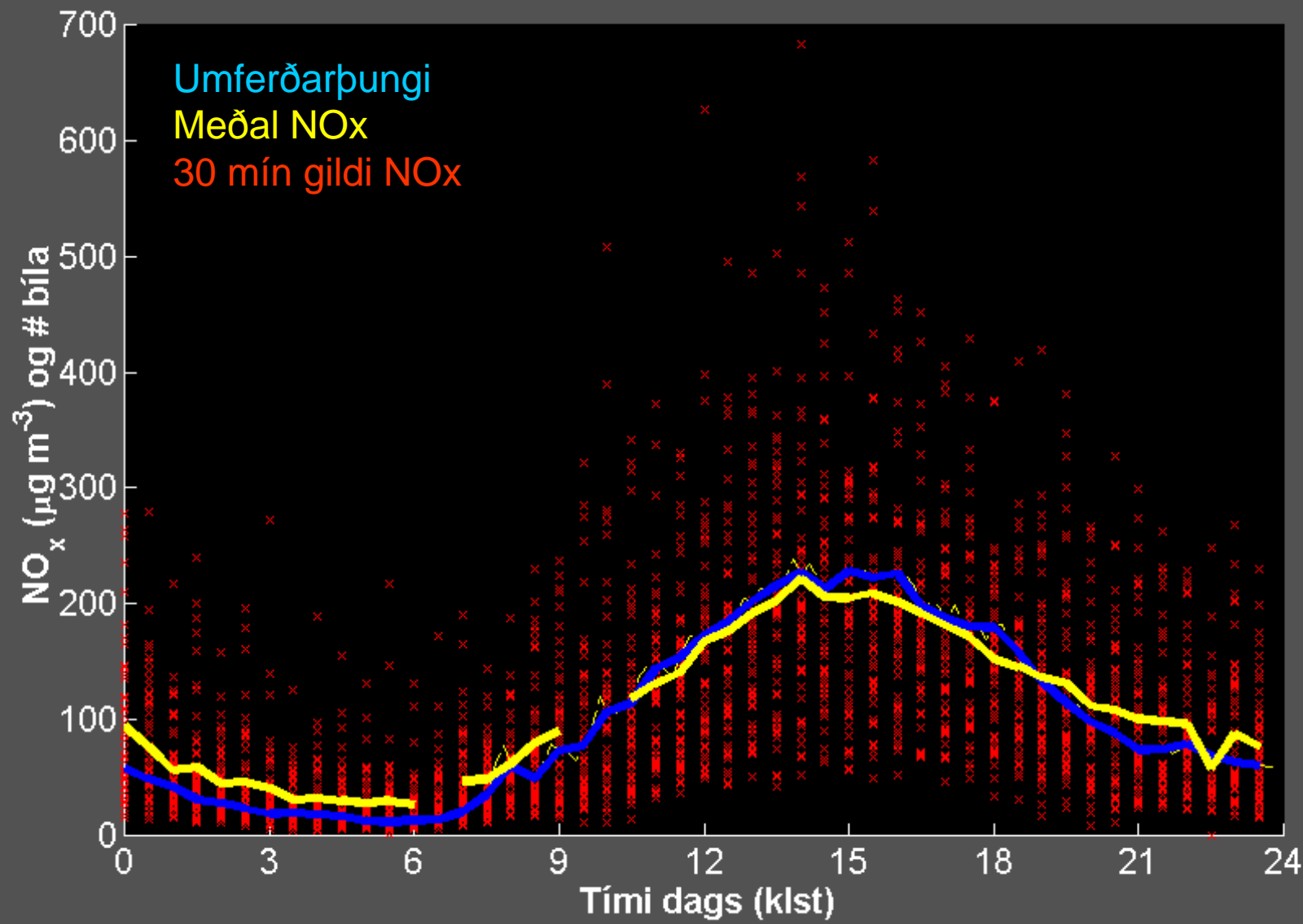
## ■ Reiknum

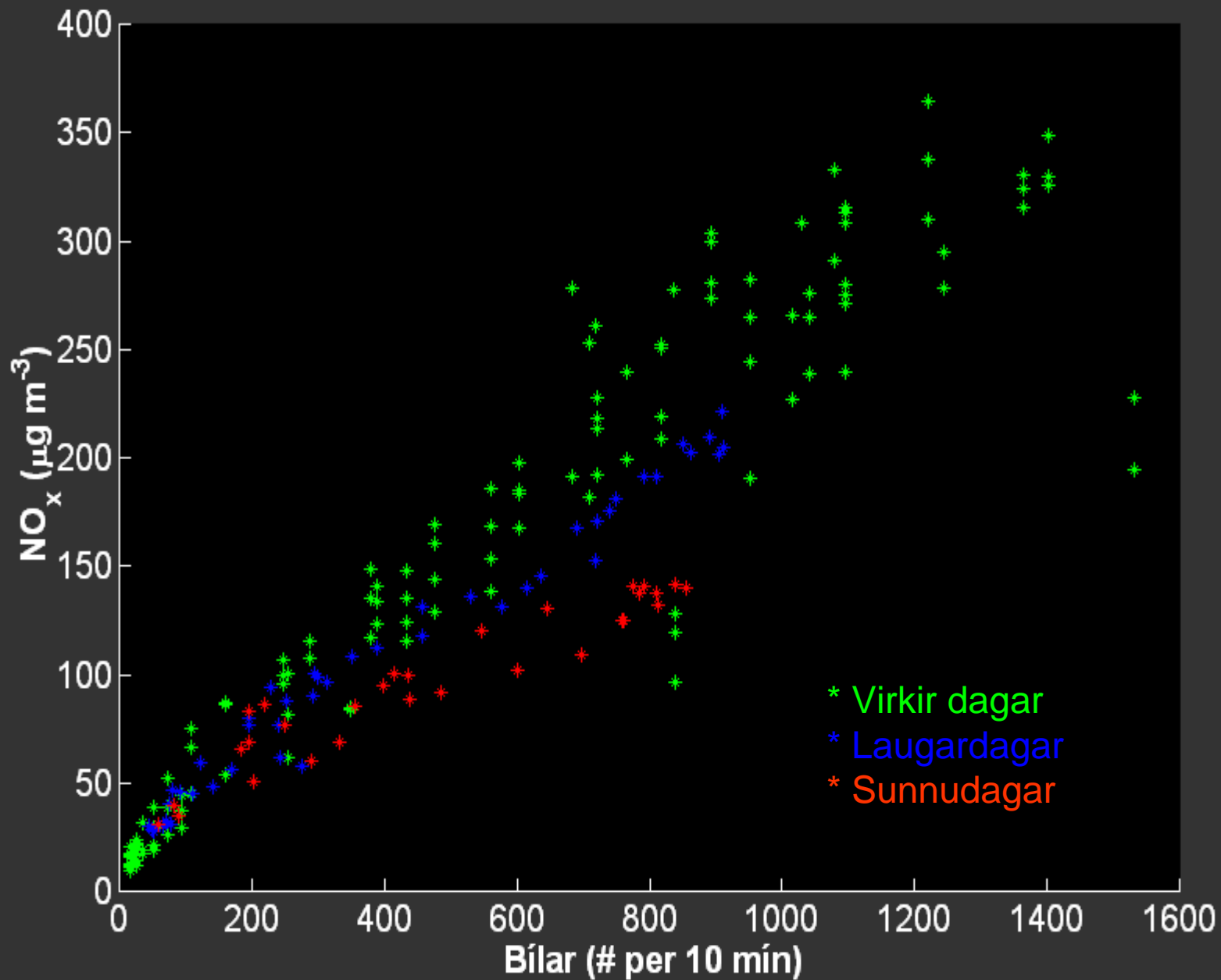
- Tengsl umferðarþunga og magns NO<sub>x</sub>





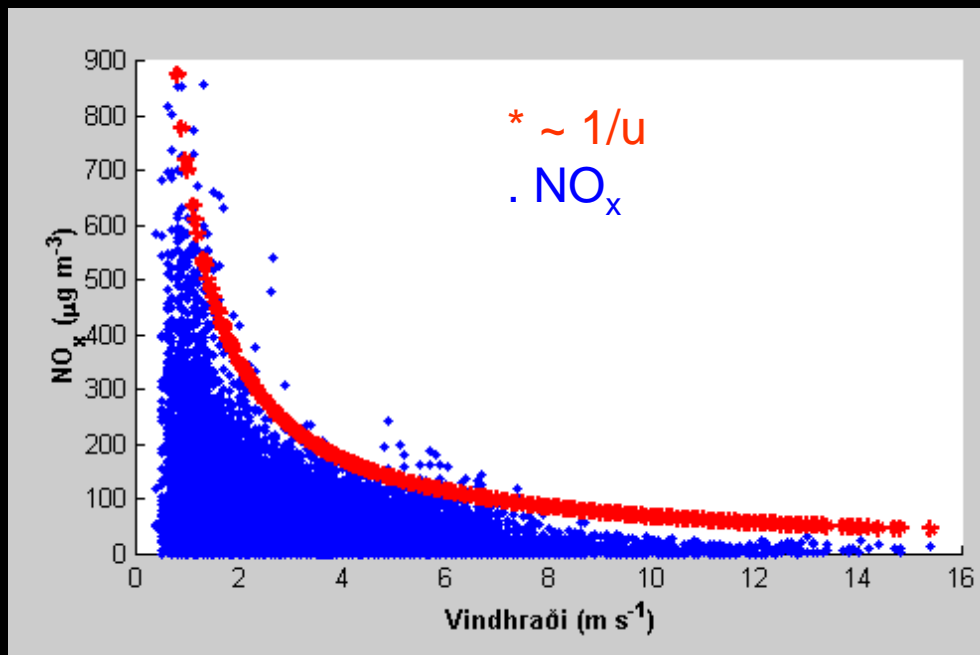








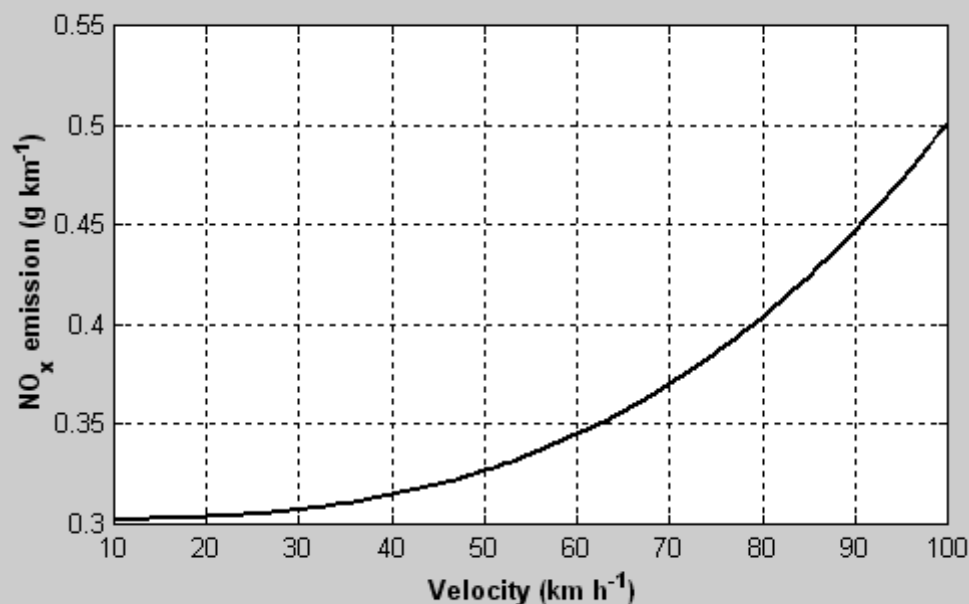
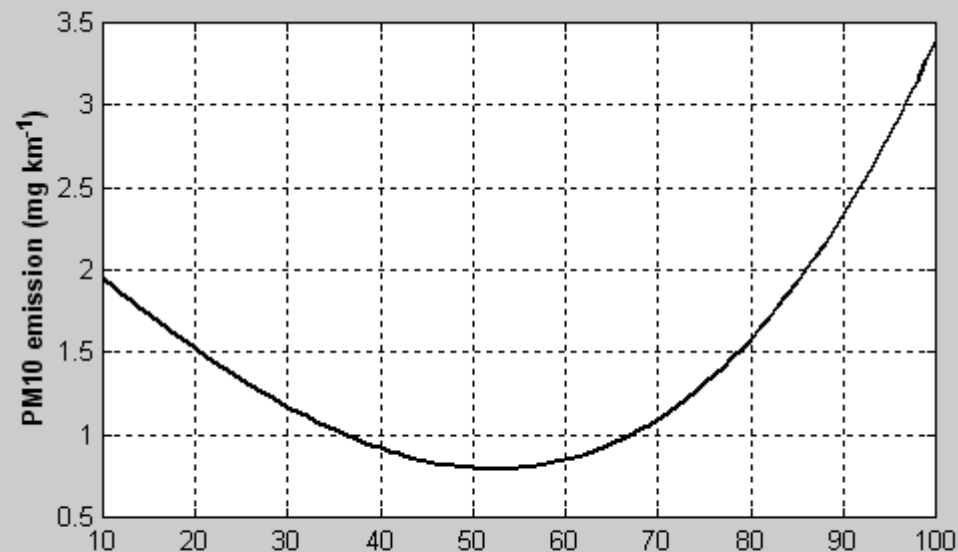
# NO<sub>x</sub> og vindhraði

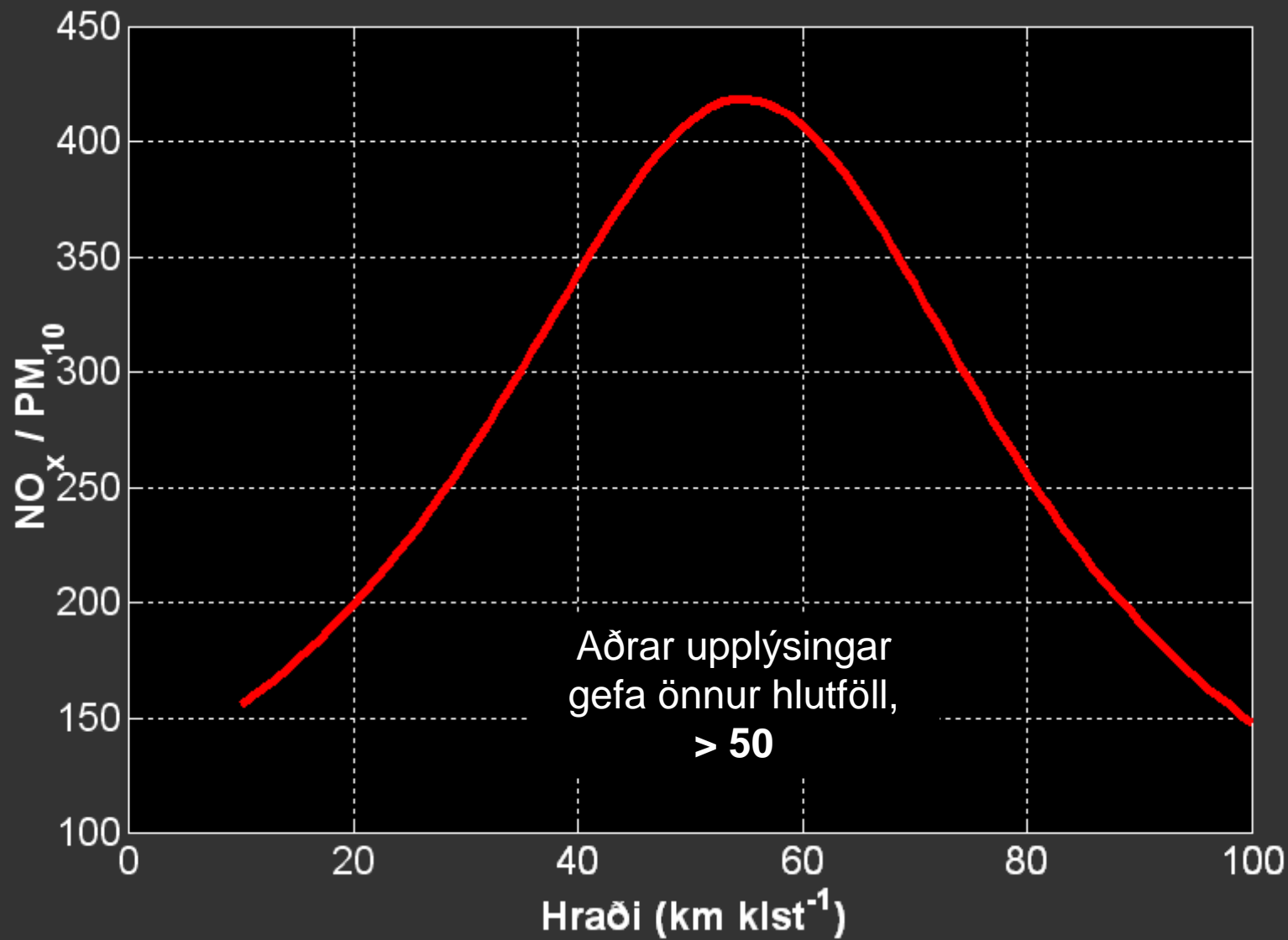


Styrkurinn á að falla í réttu hlutfalli við  $u^{-1}$

# Magn $\text{PM}_{10}$ $\text{mg km}^{-1}$ og

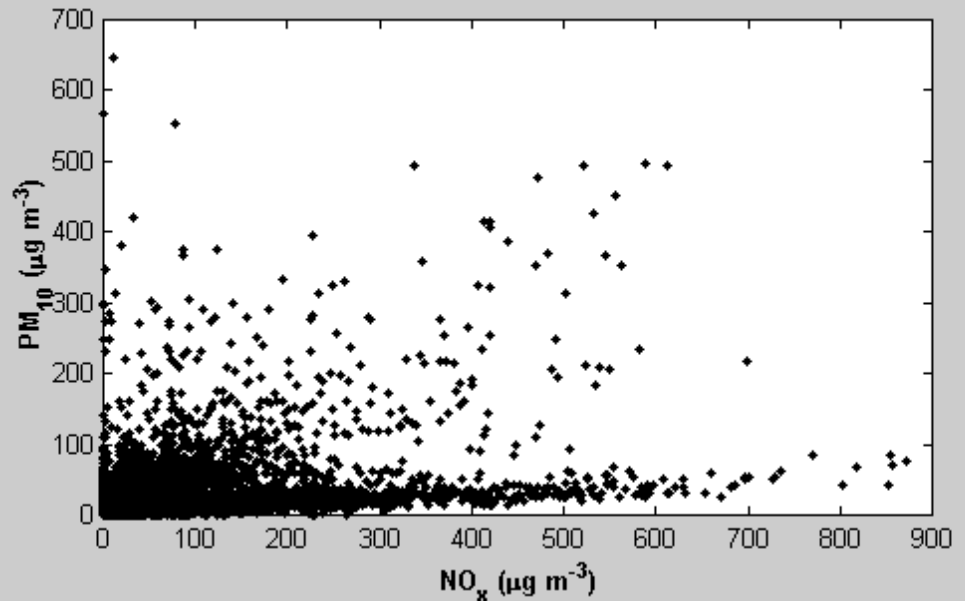
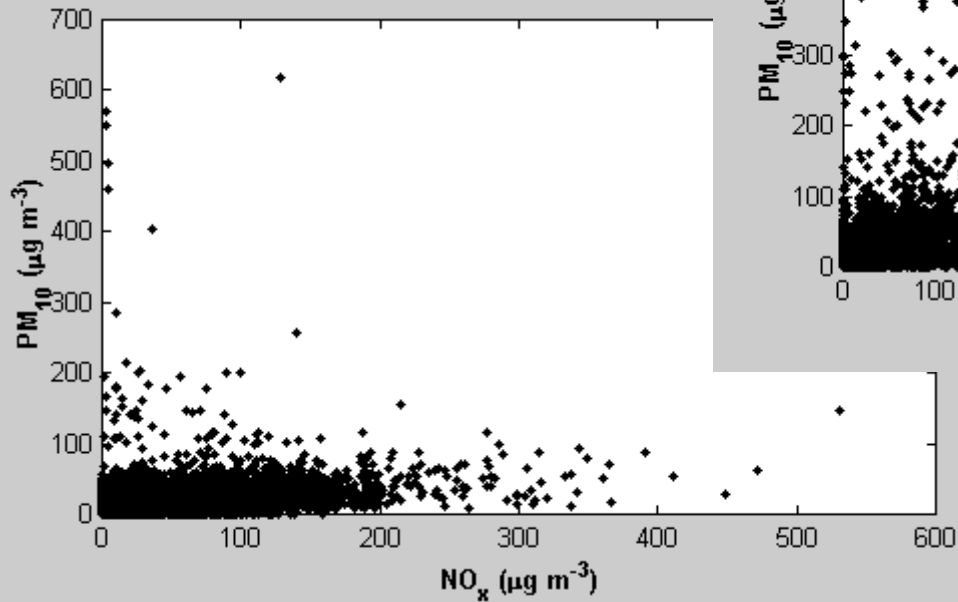
- Reiknað magn svi
  - Sem fall af hraða
  - Jöfnur fengnar frá Emissions Invento
- $\text{g km}^{-1}$





# PM<sub>10</sub> og NO<sub>x</sub>

Sumar



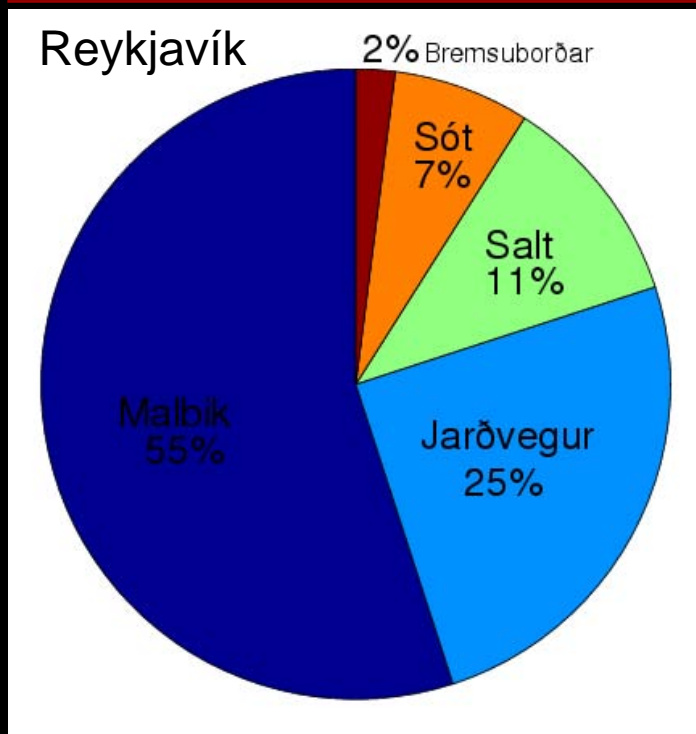
Vetur

# Samband $PM_{10}$ og $NO_x$

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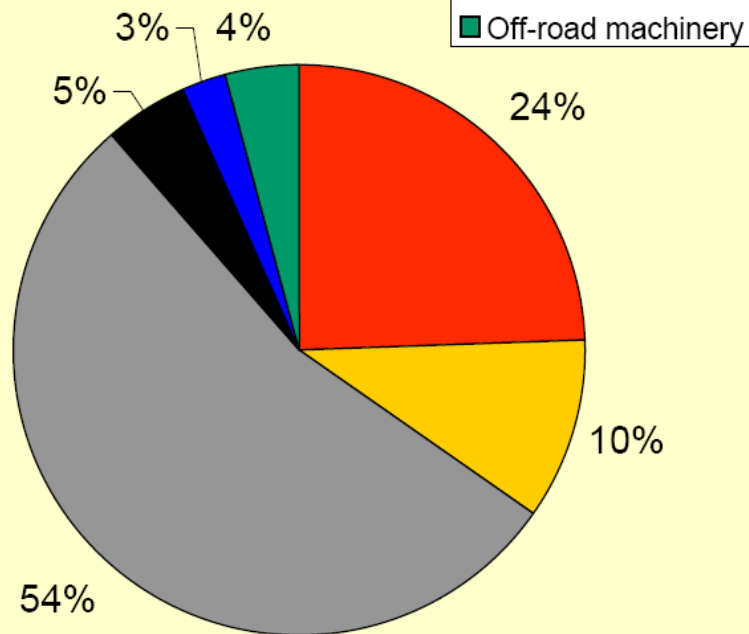
- Svifryk er um 5 - 40 sinnum meira en fæst úr útblæstri
  - Mjög mismunandi upplýsingar magn mengandi efna í útblæstri
- En, passar ágætlega við þær athuganir sem til eru á efnasamsetningu svifryks – þar sem hlutfallið er gjarnan ~10

# Samsetning PM<sub>10</sub>



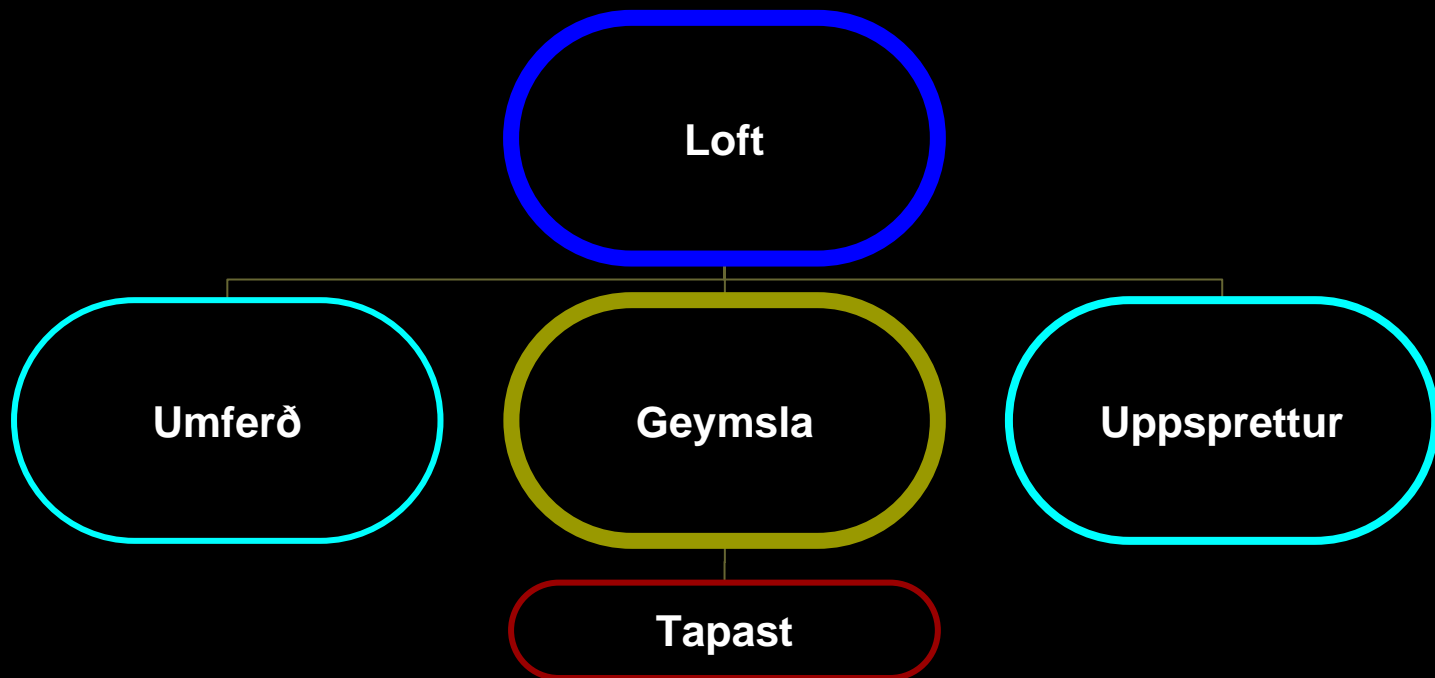
Malbik ~55%, útblástur ~5%

## Stokkhólmur Emissions (City)



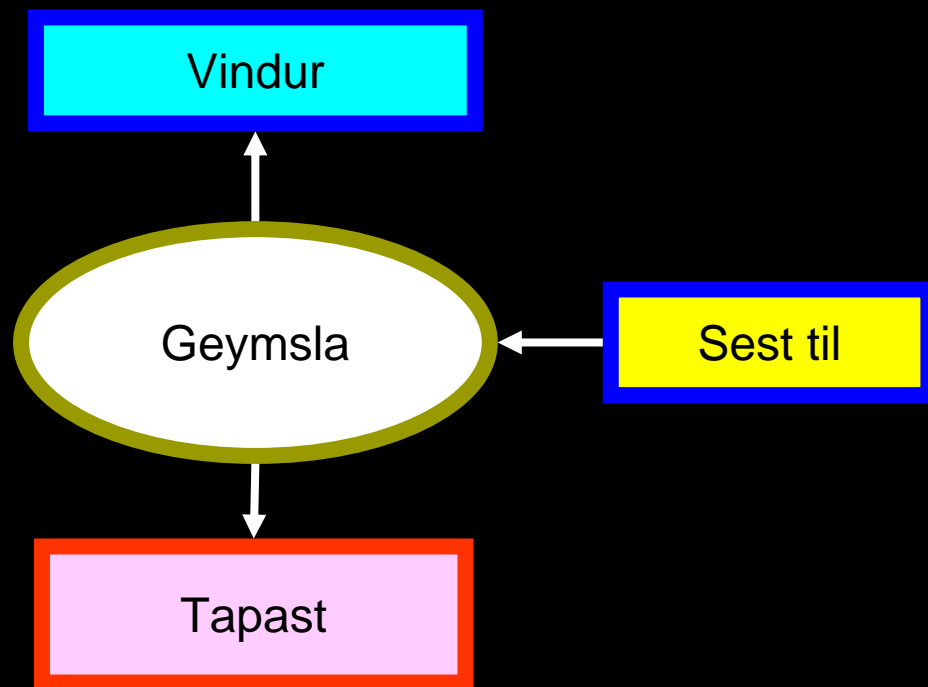
# Útreikningar á $PM_{10}$ í lofti

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# Geymsla

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VINDUR:  
Rýfur upp laust ryk

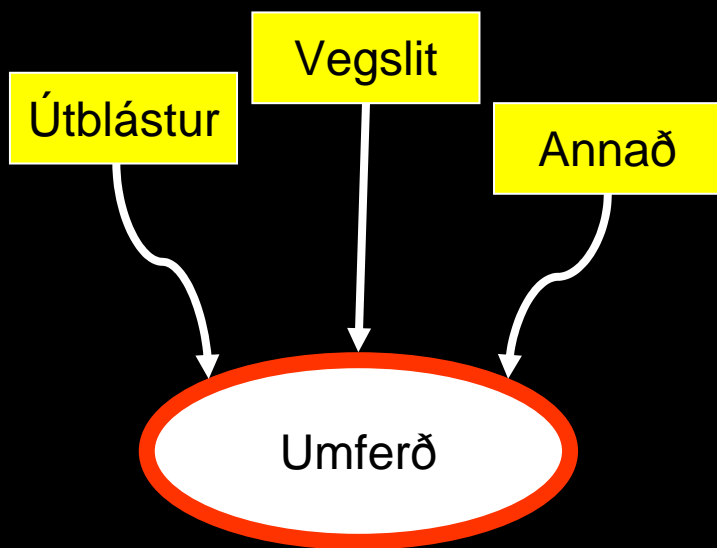
SEST TIL:  
Ryk sem fellur og safnast fyrir

TAPAST:  
Ryk sem skolast burt



# Umferð

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ÚTBLÁSTUR:

Reiknað magn PM10 í útblæstri

VEGSLIT:

Magn PM10 vegna slits á vegum

ANNAÐ:

Bremsuborðar, ...

# Fólksbílar – PM<sub>10</sub> (mg/km)

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- Dekkjaslit: 3.5 – 6.5
- Bremsur: 3.5 – 7.5
- Vegslit: 7.5 (almennt)  
20 – 1200 (naglar)
- Útblástur: 1 – 18 (bensín)  
32 – 62 (dísel)

# Uppsprettur

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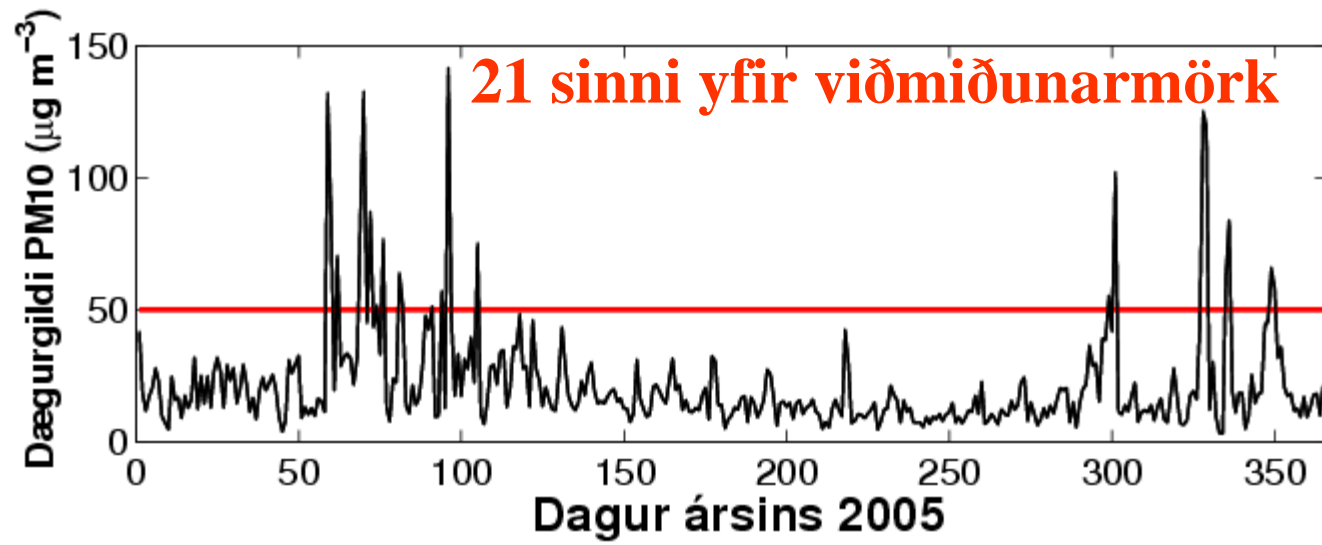
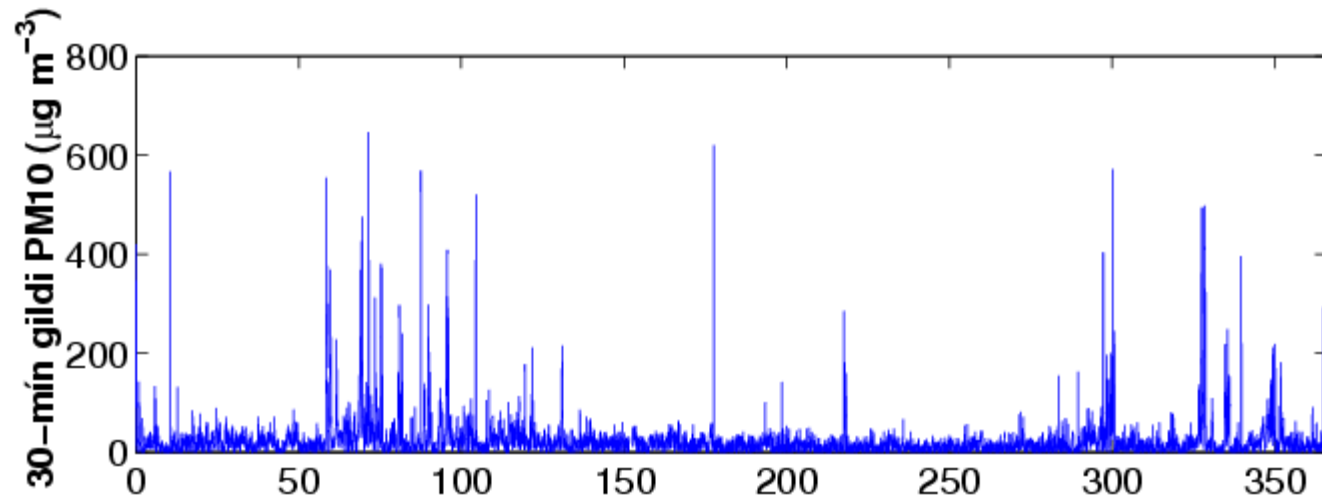
Uppsprettur

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graph TD; A(Uppsprettur) --- B(Sandstormar); A --- C(Eldar Sjávarsalt Annað); A --- D(Bakgrunnur);
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Sandstormar

Eldar  
Sjávarsalt  
Annað

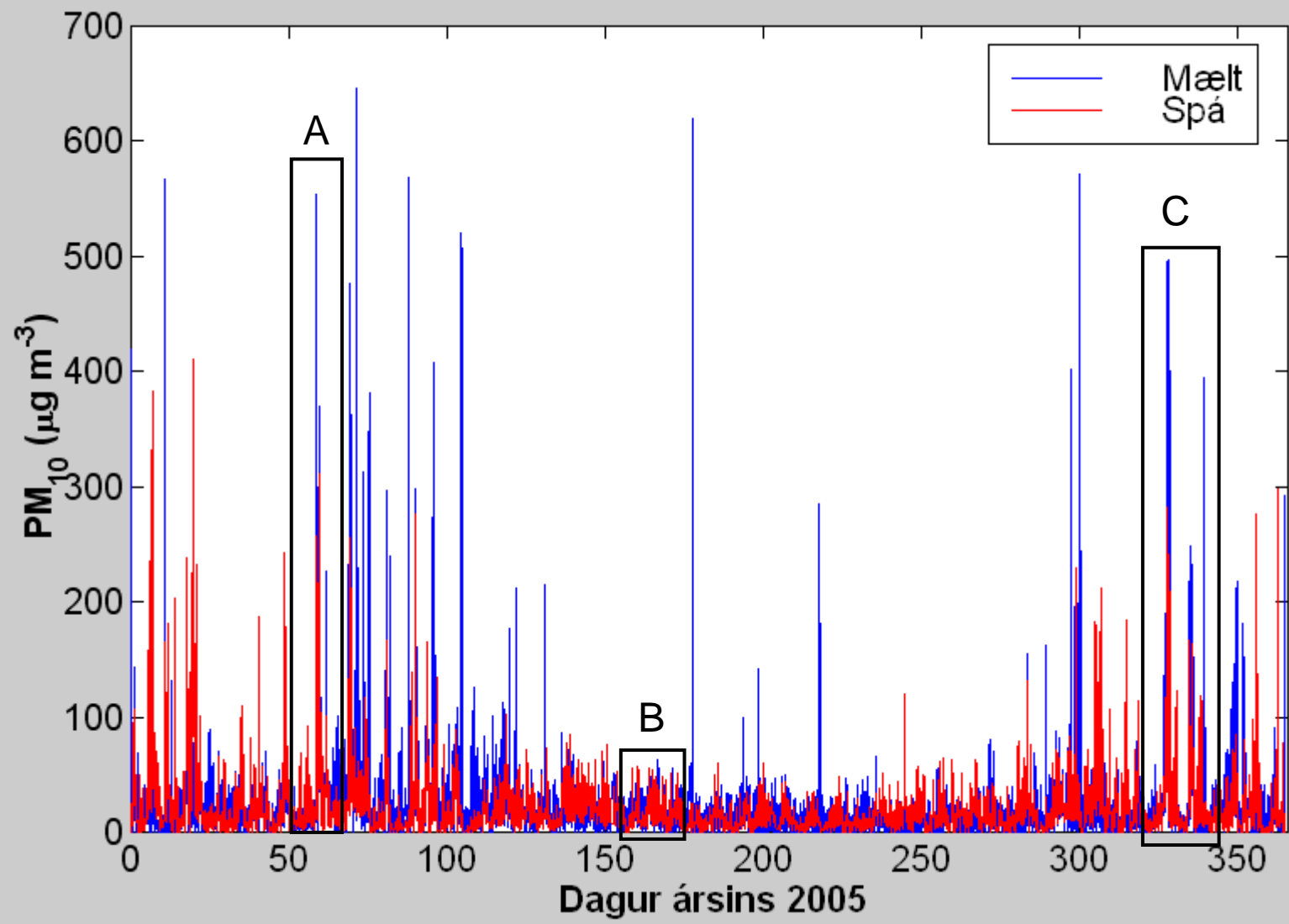
Bakgrunnur

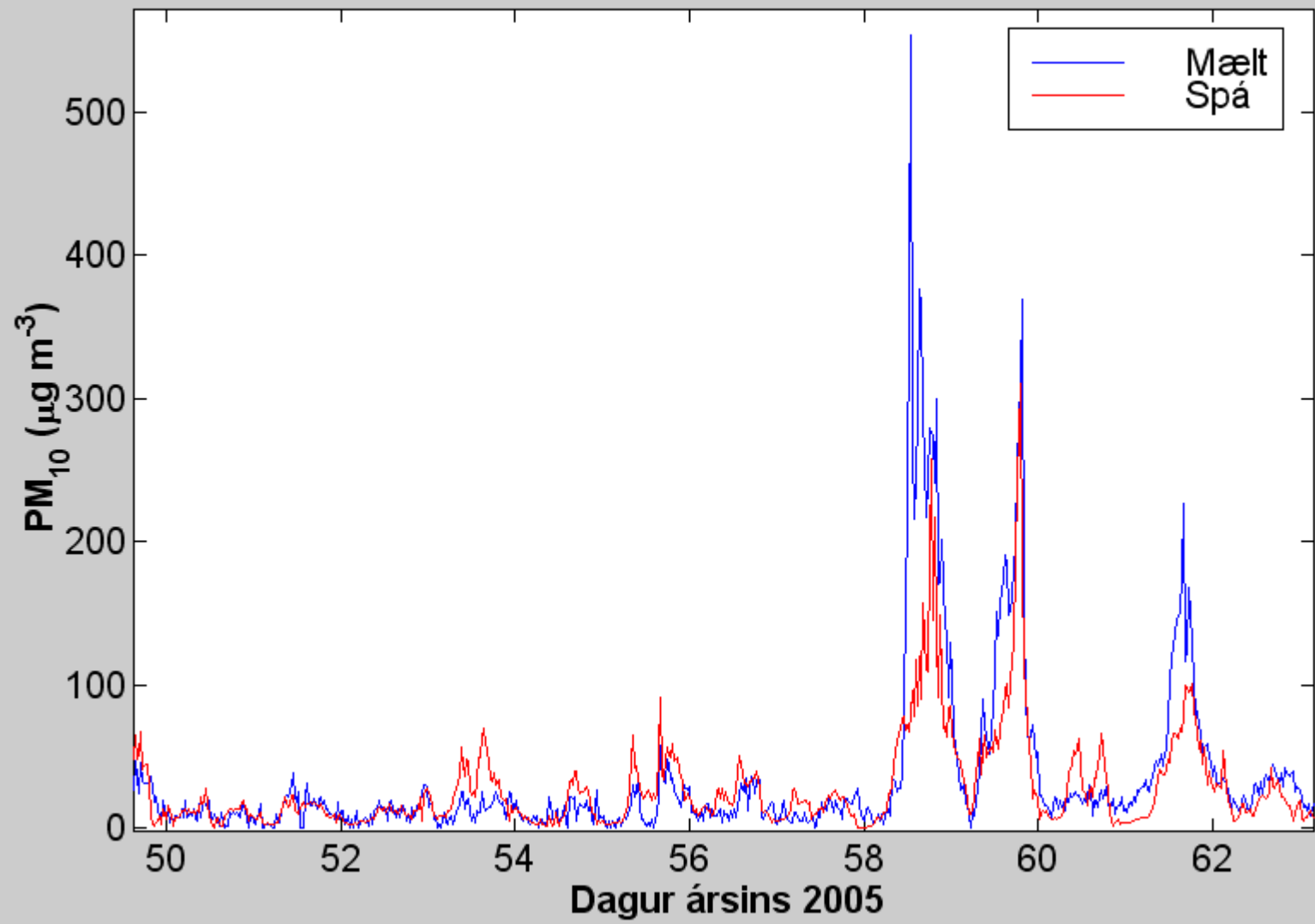


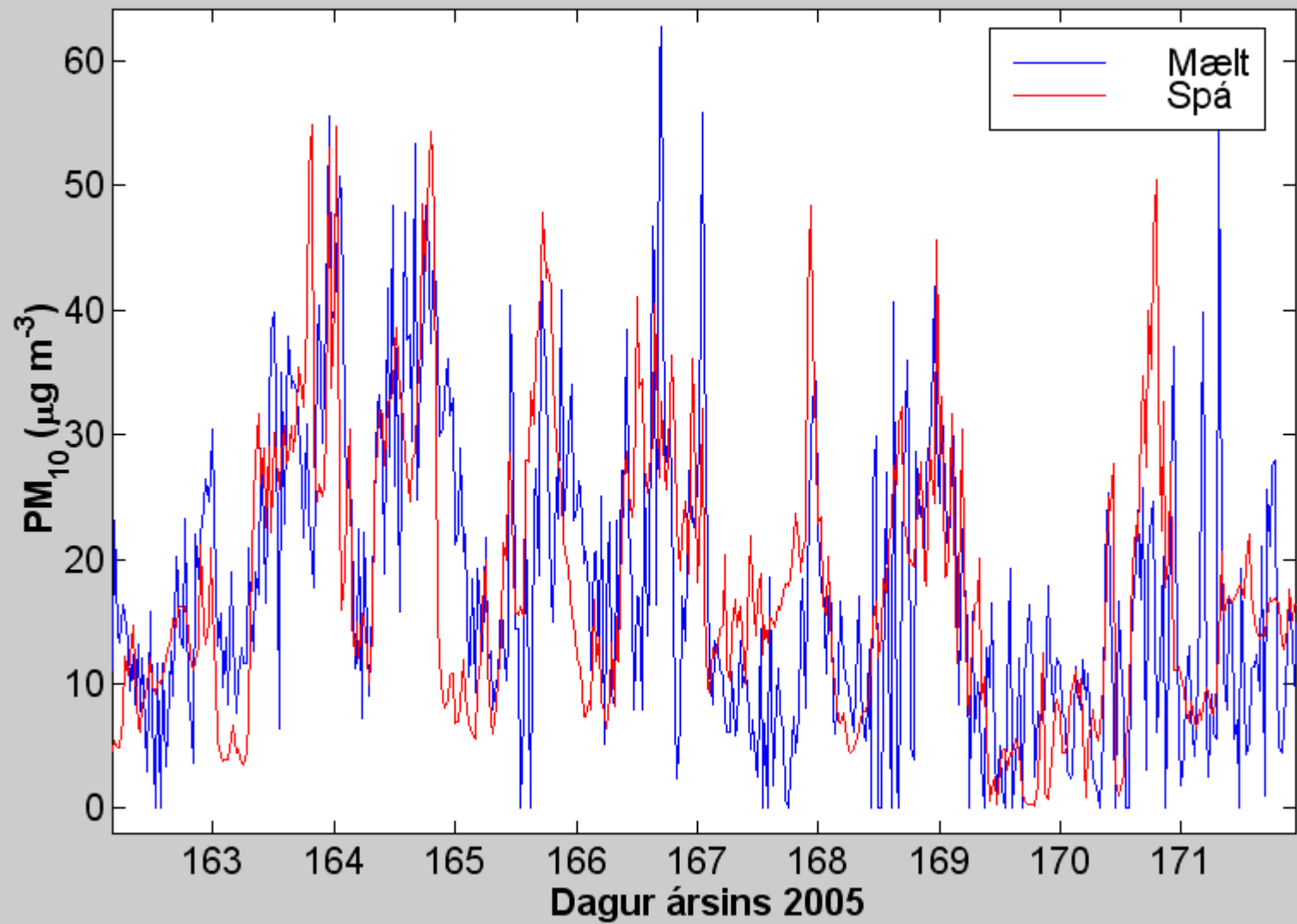
# Staða líkans nú

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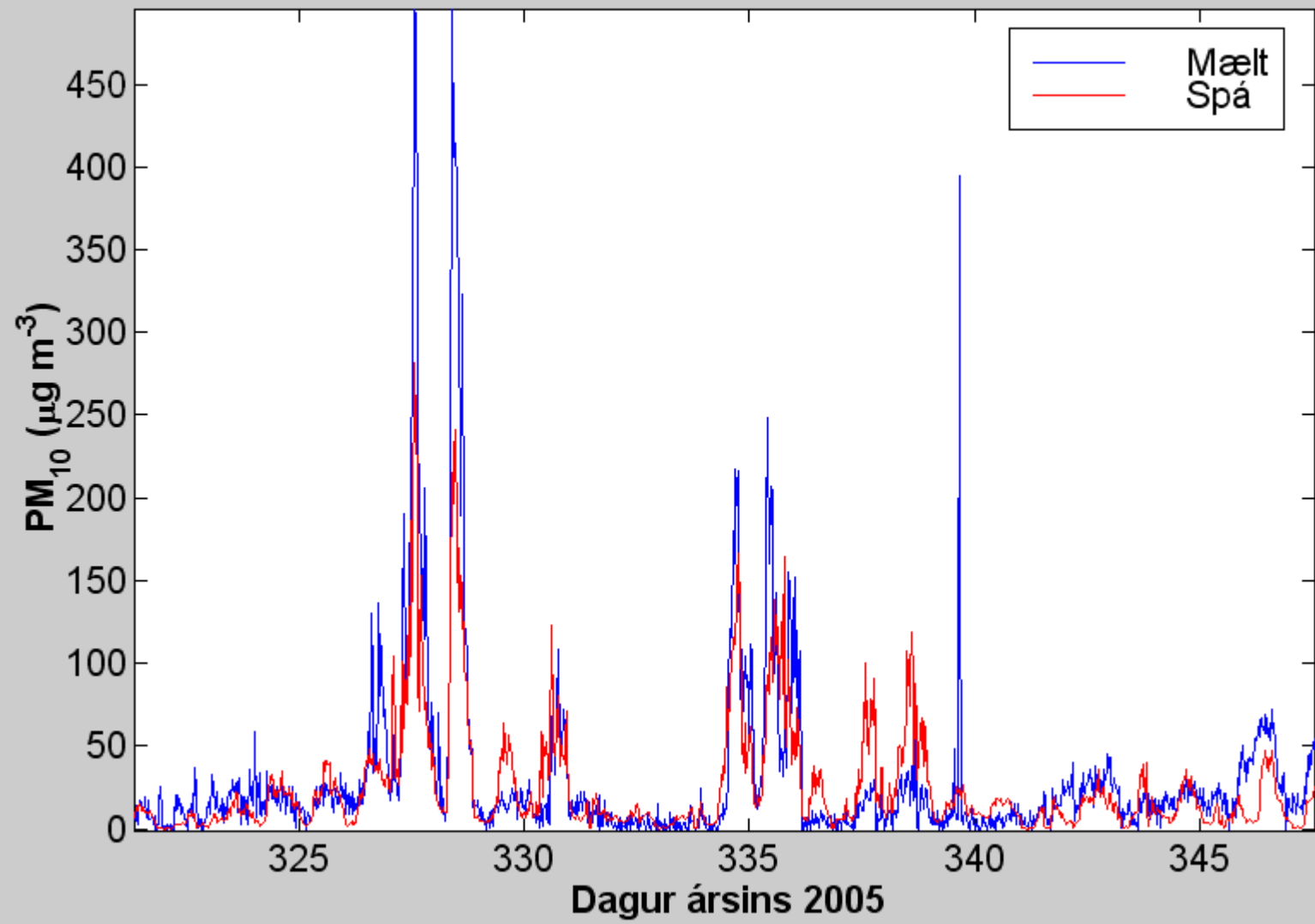
- Drifið áfram af upplýsingum um styrk  $\text{NO}_x$
- Tekur tillit til veðurþátta á mjög einfaldaðan hátt

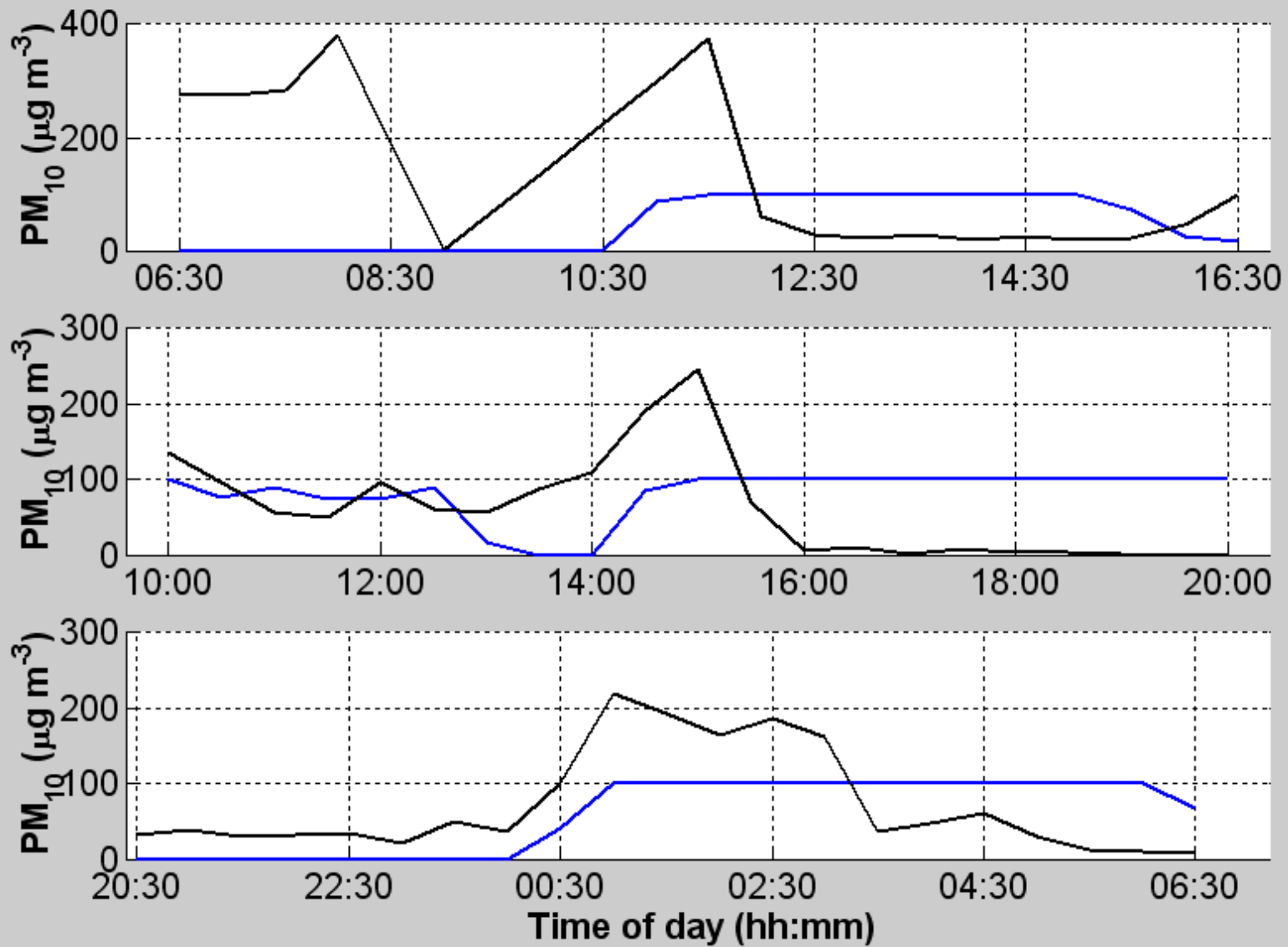












Tímastuðull  $\tau_w = 24$  mín