

# Aldu og Streymviðurskiftini á AliFirðunum (ASAF) verkætlanin

Knud Simonsen

Aliráðstevnan, 22. feb. 2013

# Verkætlanin

## **Aldu – og Streymmátingar á Alifirðunum (ASAF)**

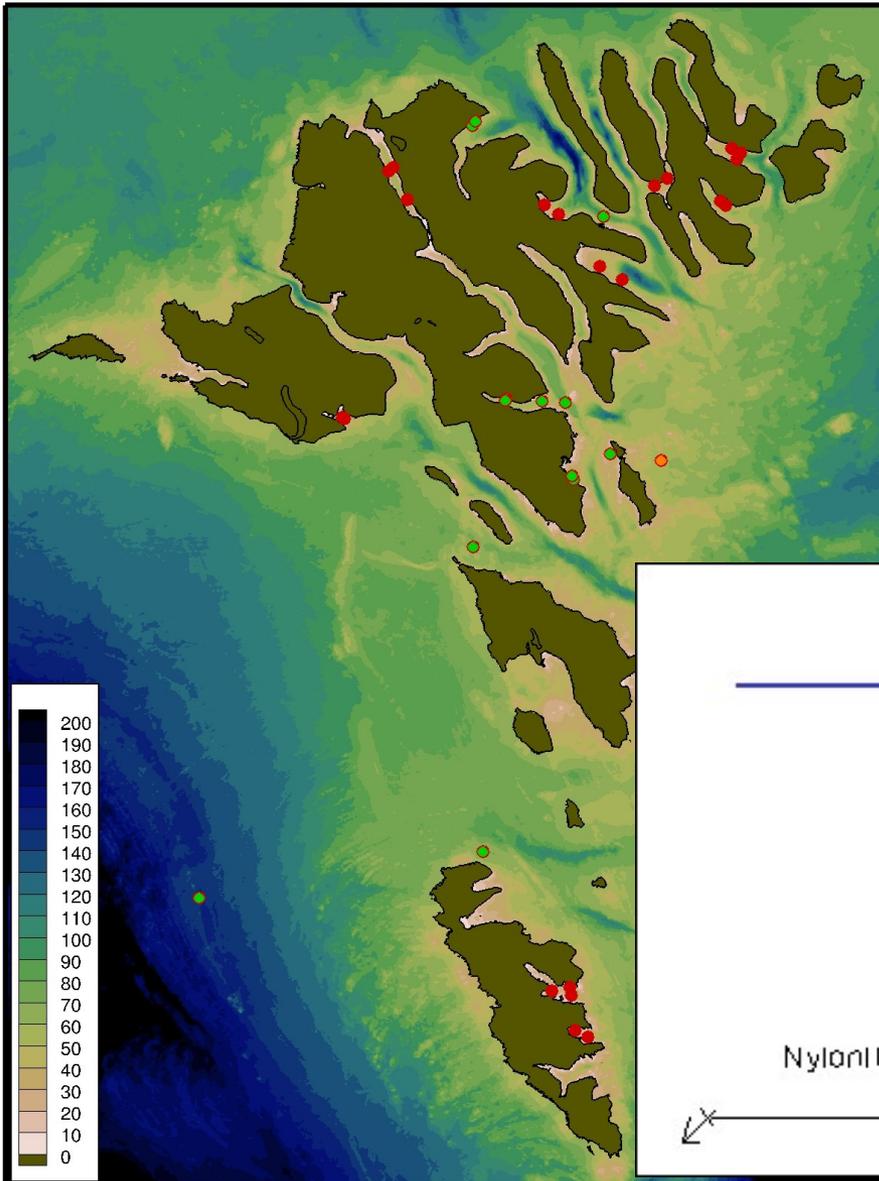
- Streym og aldumátingar
- Alduatlas
- Sjóvarfalsatlas (TSEF)
- SpjaðingarAtlas
- Útgerðsstandard kort
- Berievni hjá firðunum
- 3D-simulering av Sundalagnum og hjálíggjandi firðir

**Framd av: Fiskaaling, Alifeløgini, Havstovuni og NVD.**

**Fígging: Fiskaaling og alifeløgini.**

**TSEF: Fíggja av Granskingarráðinum og SEV.**

# Streymmátingar

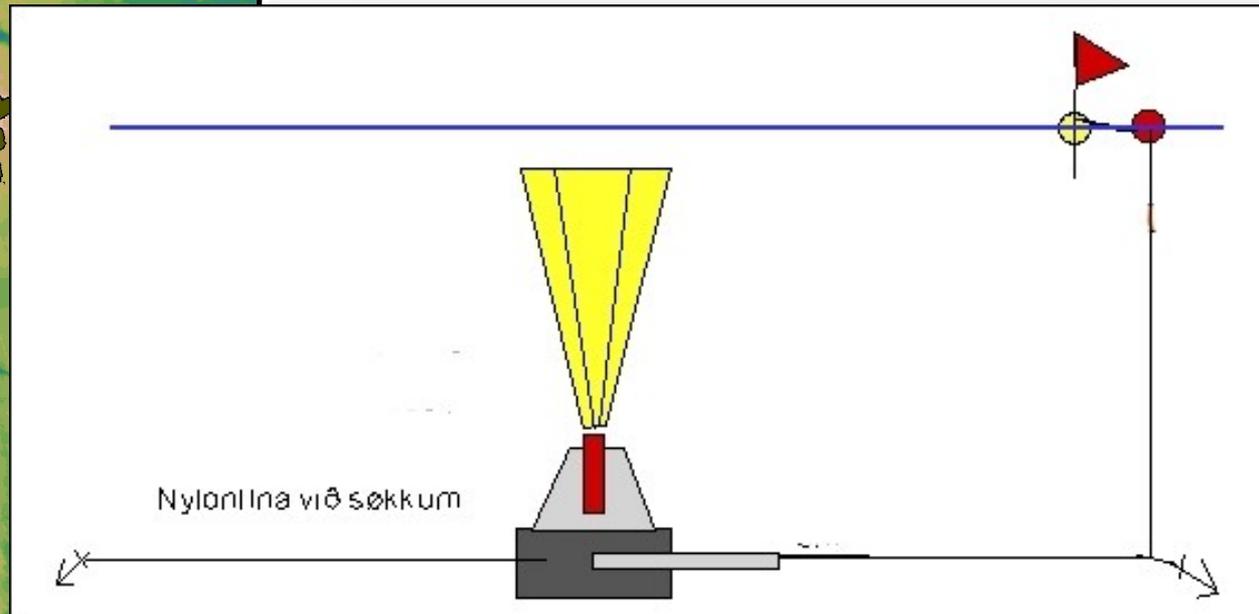
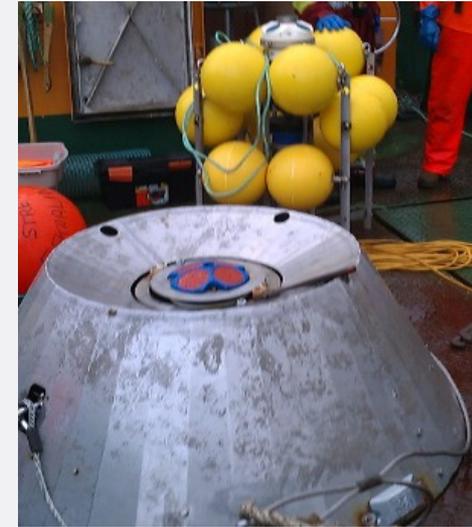


-  ASAF
-  Aðrar á FA
-  Havstovan & NVD

## Tíðarætlan:

Máta: 8 vikur

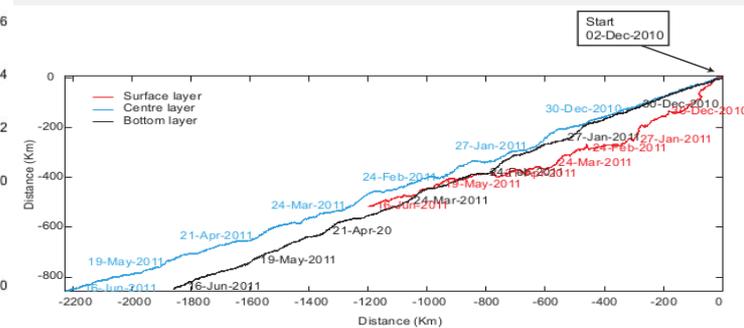
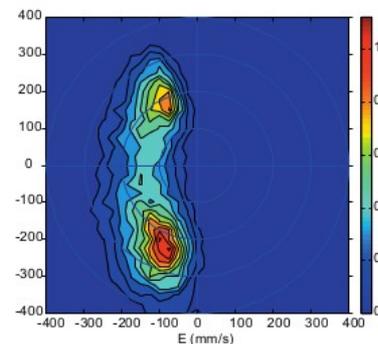
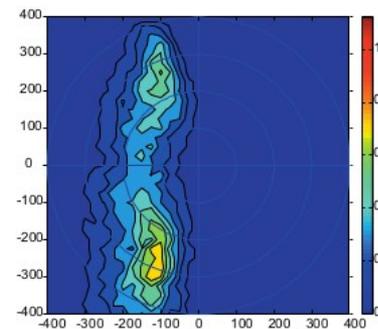
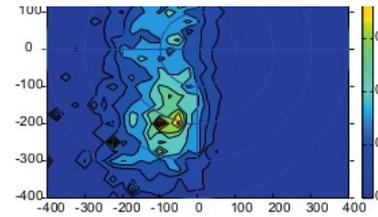
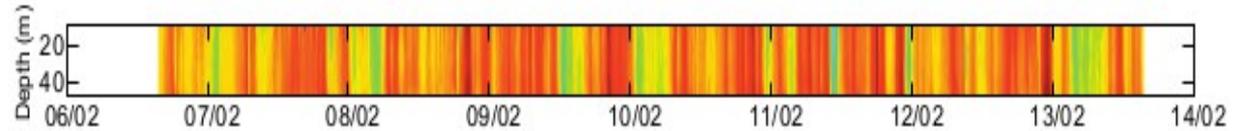
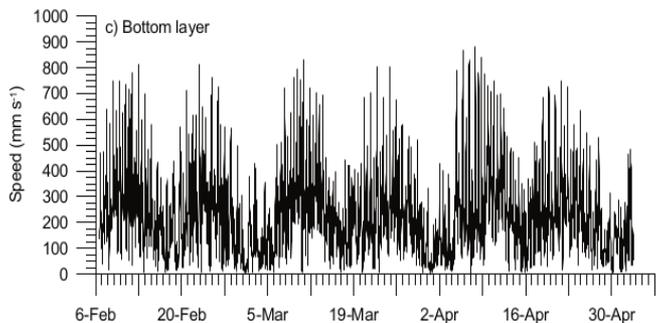
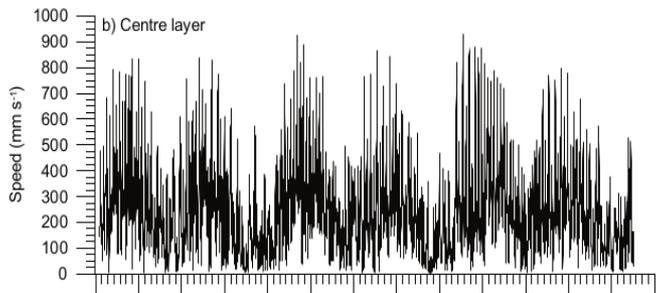
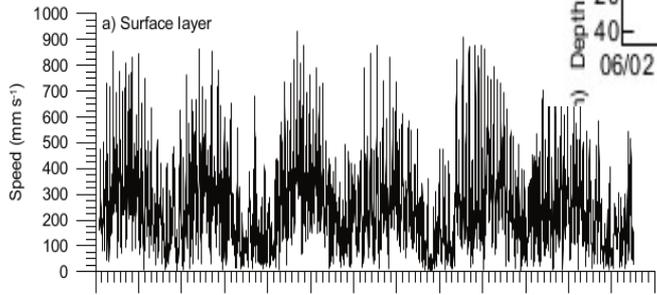
Upp/út: 2 vikur



# Streymmáting: Frágreiðing

Havstovan góðskutryggjar mátingarnar.

Timeseries of speed at selected layers



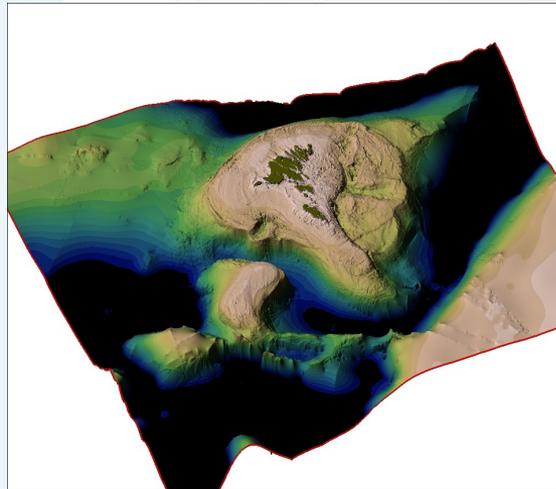
- + títleika tabellir
- + sjóvarfals analysa

# Streymatlas: Ráevnir

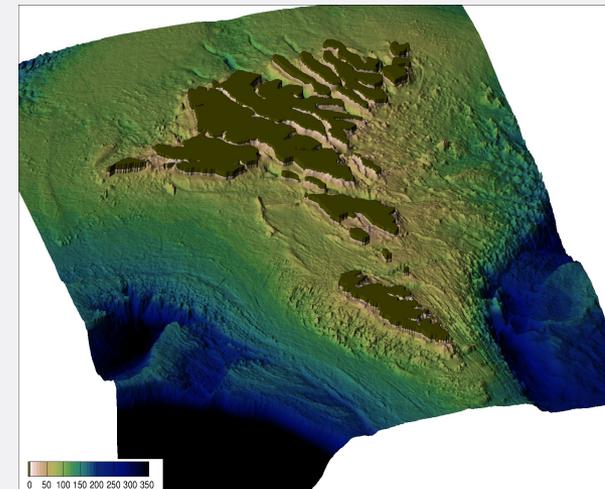
- teldusimuleringar

Úrslit frá einum størri myndli (Egbert et al, 1994)

Økið 1: Uppløysligheit á 500 m



Økið 2: Uppløysligheit á 100 m



Líkningar:

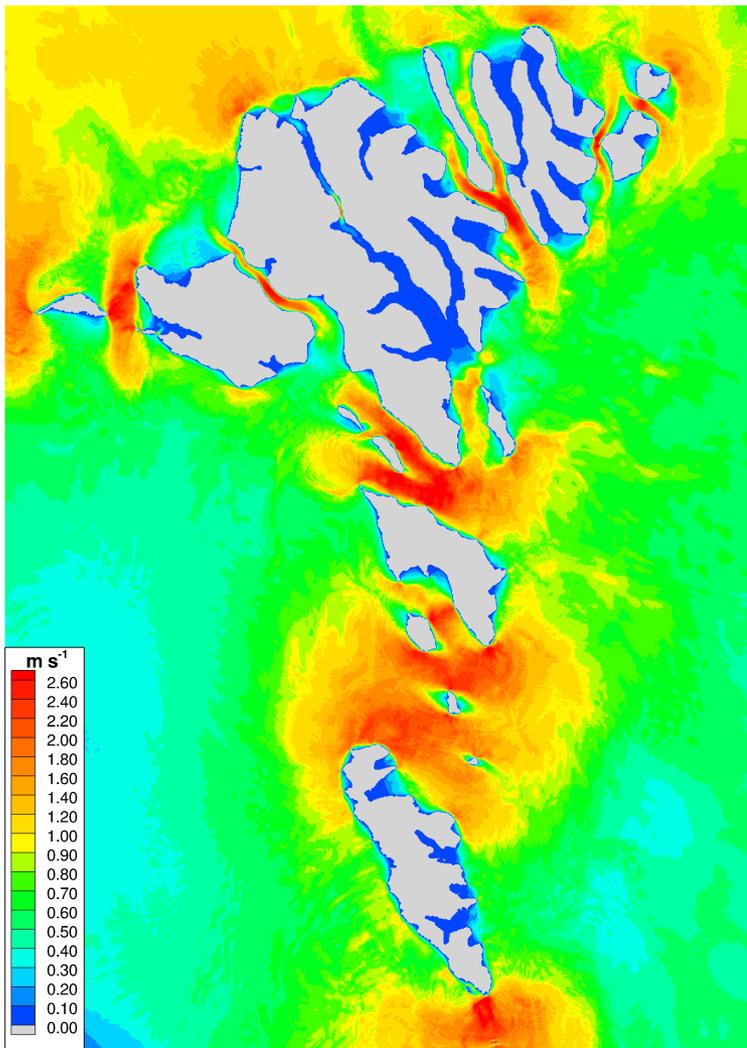
$$\frac{\partial \eta}{\partial t} + \frac{\partial U}{\partial x} + \frac{\partial V}{\partial y} = 0$$

$$\frac{\partial U}{\partial t} + \frac{U}{h} \frac{\partial U}{\partial x} + \frac{V}{h} \frac{\partial U}{\partial y} - fV = -gh \frac{\partial \eta}{\partial x} + A_x + B_x$$

$$\frac{\partial V}{\partial t} + \frac{U}{h} \frac{\partial V}{\partial x} + \frac{V}{h} \frac{\partial V}{\partial y} + fU = -gh \frac{\partial \eta}{\partial y} + A_y + B_y$$

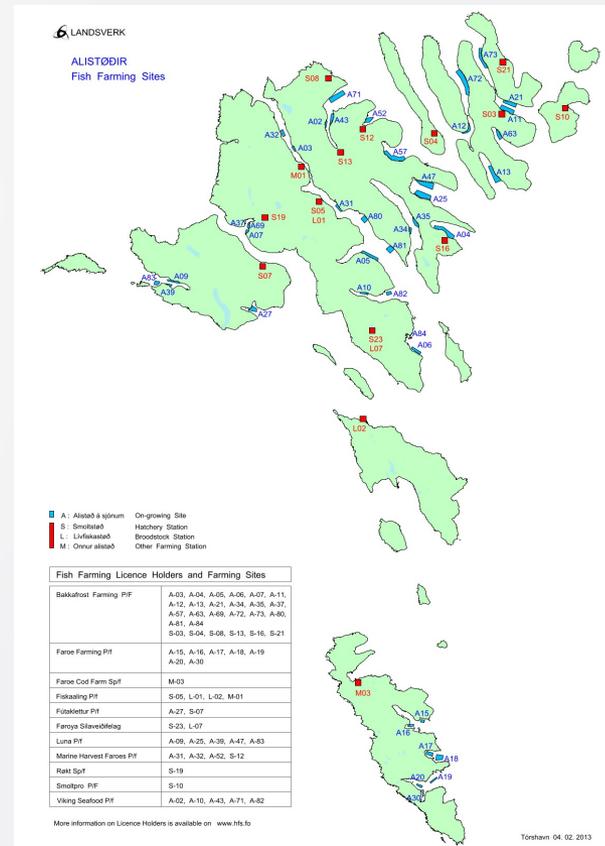
Mátningar av rák og vatnstøðu til samanberingar.

# Streymatlas: Mesta ferð

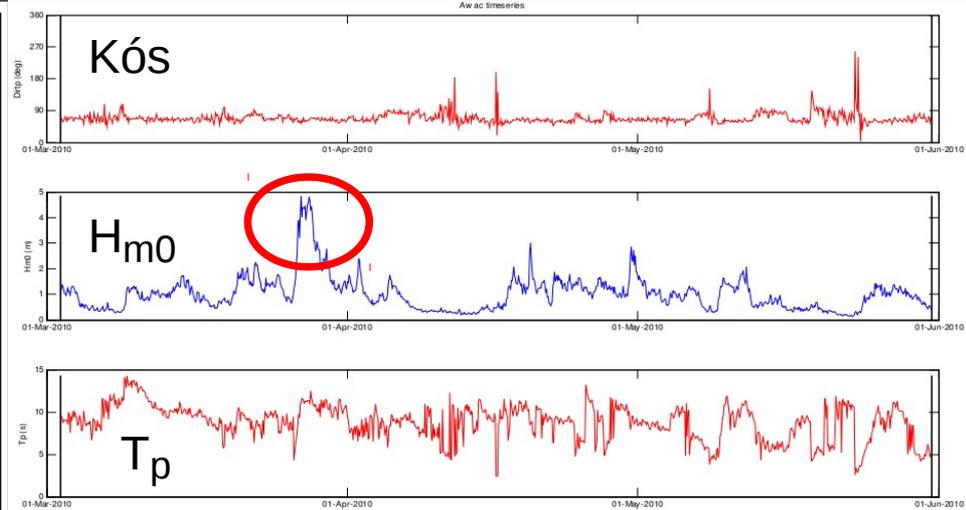
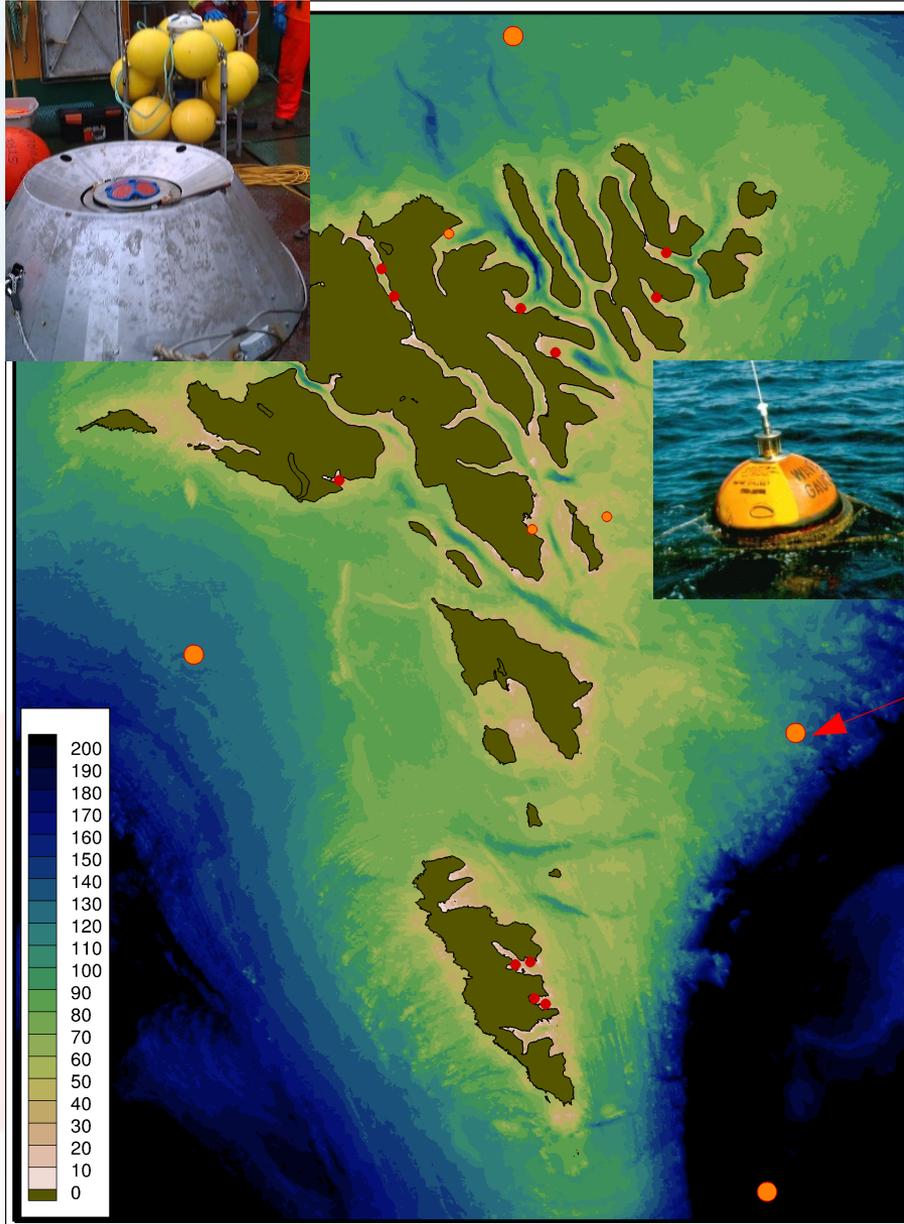


Næstu fetini:

1. Sambering við mátingar á alifirðunum.
2. Ger av spjaðingsatlas

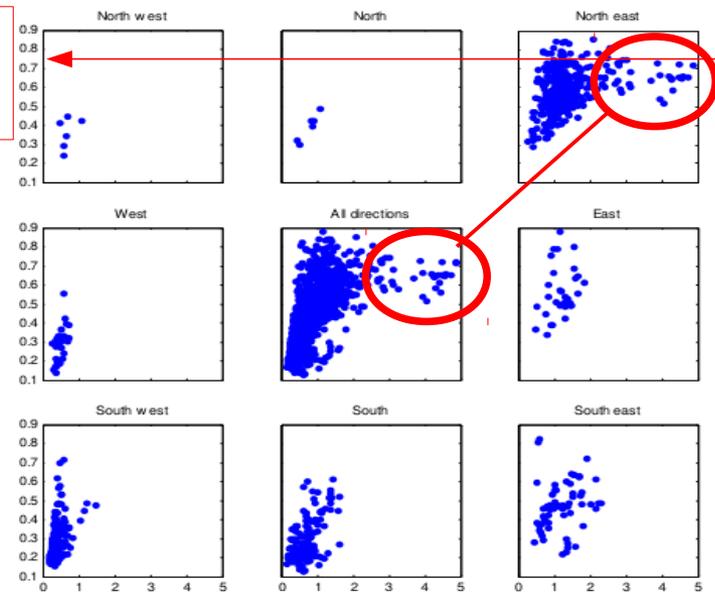


# Aldumátingar



70%  
av

H<sub>m0</sub> lokalt/H<sub>m0</sub> úti á



H<sub>m0</sub> lokalt

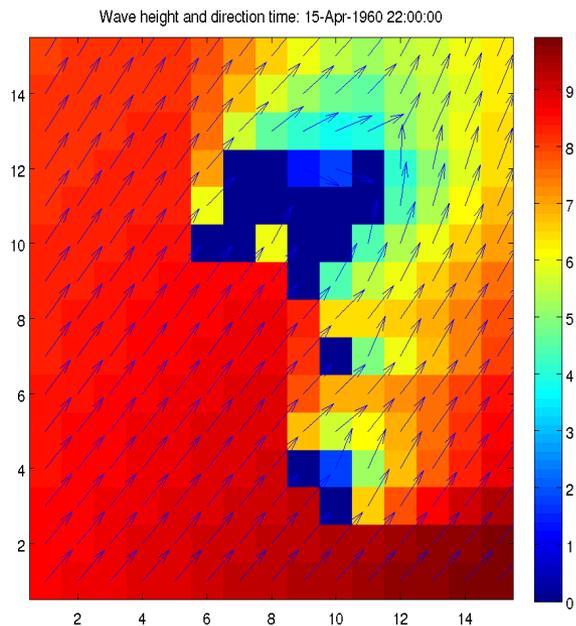
# Alduatlas: Ráevnir

- teldusimuleringar

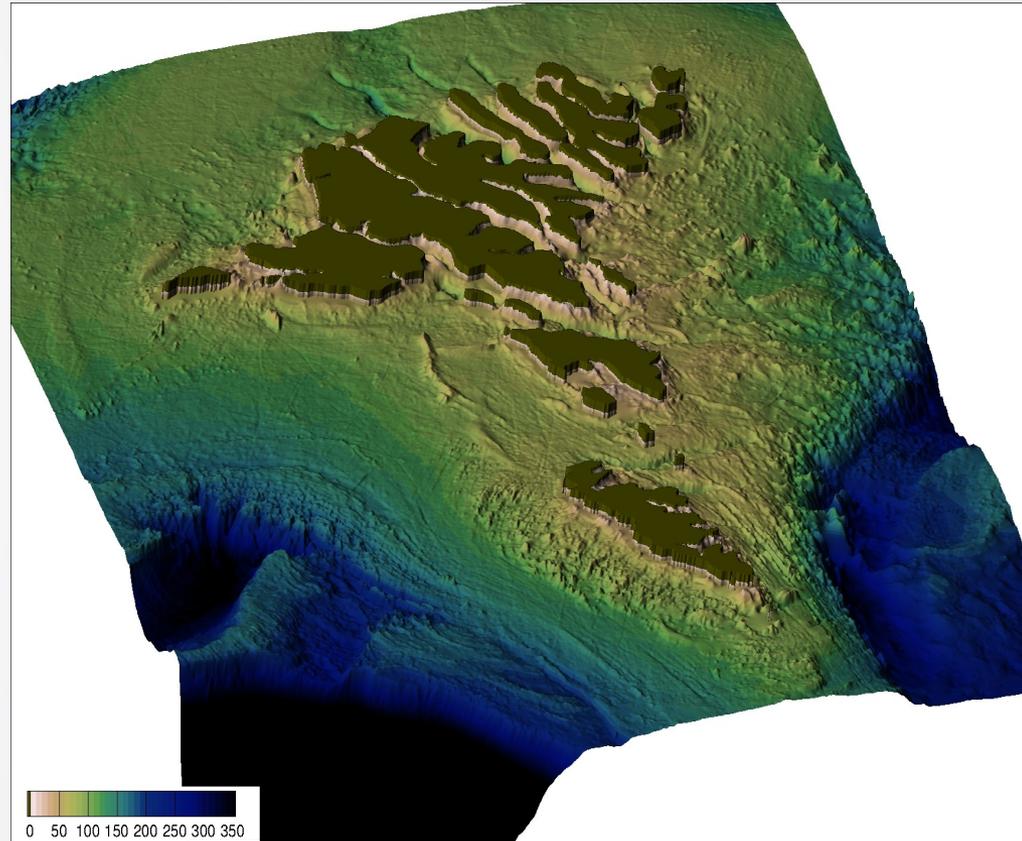
## Randtreyt:

- Vind á yvirflatuna
- Aldu á opnu rondunum

Úrslit frá einari 44 ára  
afturlýtandi simulering frá DMI.



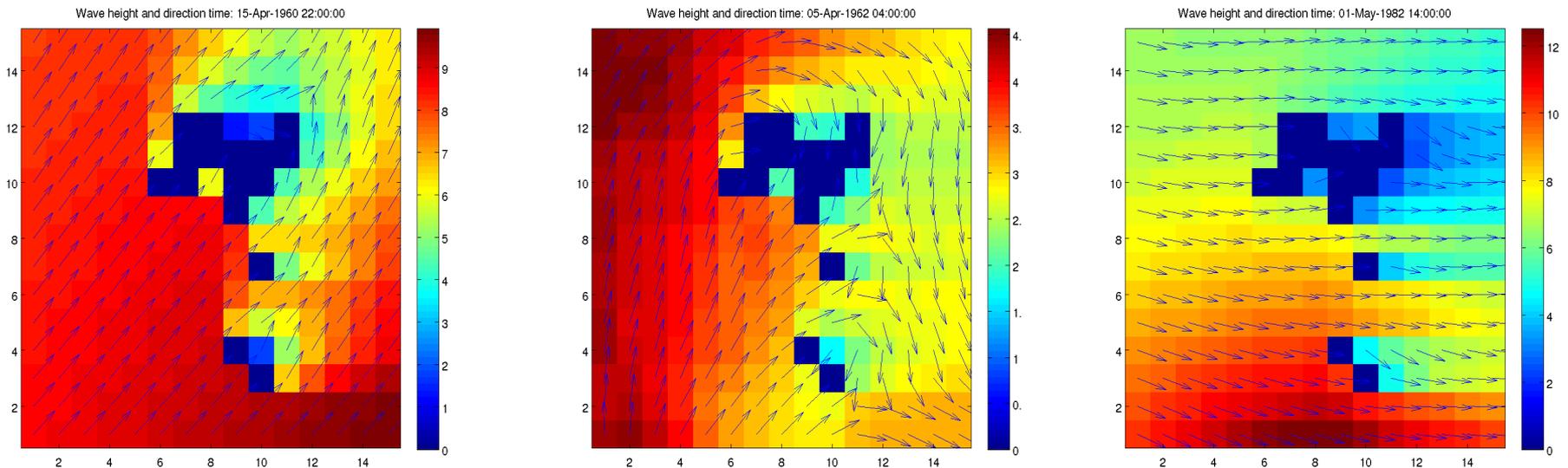
Økið: Upploysiligheit á 100 m



Líking:

$$\frac{\partial N}{\partial t} + \frac{\partial(c_x N)}{\partial x} + \frac{\partial(c_y N)}{\partial y} + \frac{\partial(c_\theta N)}{\partial \theta} + \frac{\partial(c_\sigma N)}{\partial \sigma} = S(x, y, \sigma, \theta)$$

# Alduatlas: Útrokningar



## Útrokningarnar:

- Fyri at spara uppá útrokningarnar: Sama alda á øllum rondunum. Ok í >75% av tíðini.
- Roknað fyri 44 ár
- Út frá 44 ára longu útrokningunum roknað mánaðar og árstøl fyri:
  - Meðal virði
  - Mesta virði
  - 10 ára virði
  - 50 ára virði

av hægsta  $H_{m0}$

# Alduatlas: Úrslit fyri Apríl

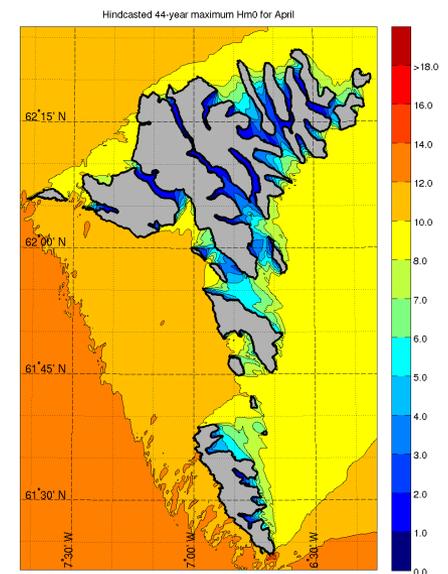
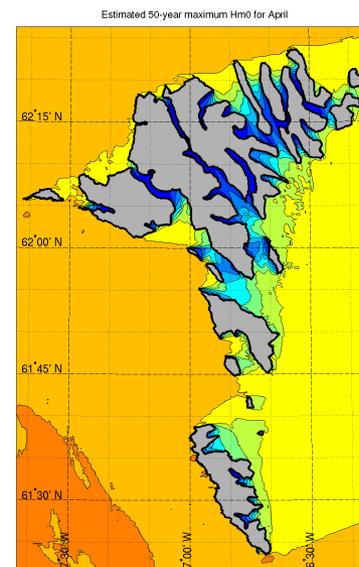
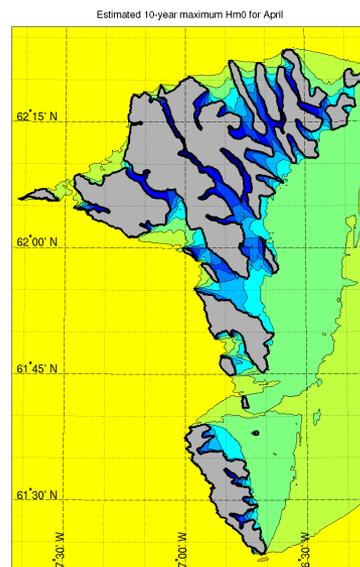
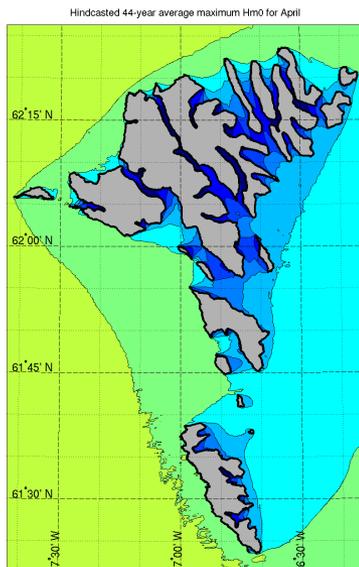
Meting fyri hægstu signifikantu aldu hædd

Meðal

10 ára meting

50 ára meting

Mesta



Í meðal er hetta vantandi

Í øllum førum hesa  
hæddina í 10 ára skeiði

Í øllum førum hesa  
hæddina í 50 ára skeiði

Er staðfest í 44 ára  
longu simuleringini

# Alduatlas: 50 ára meting

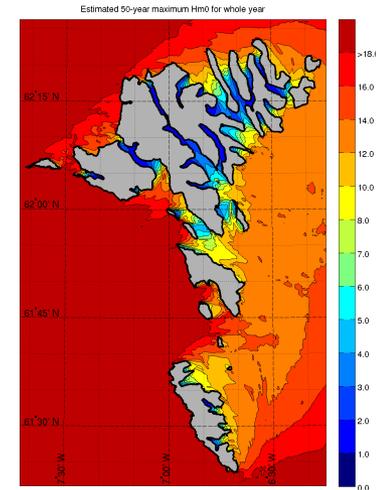
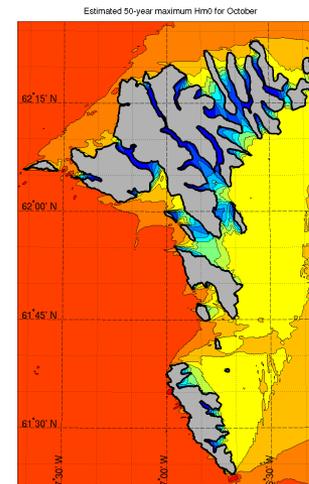
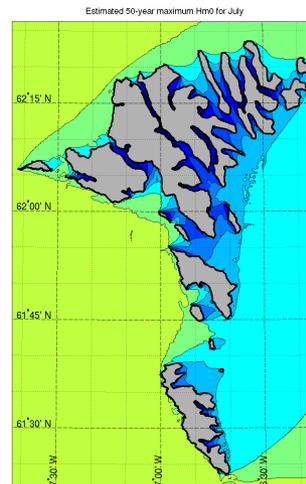
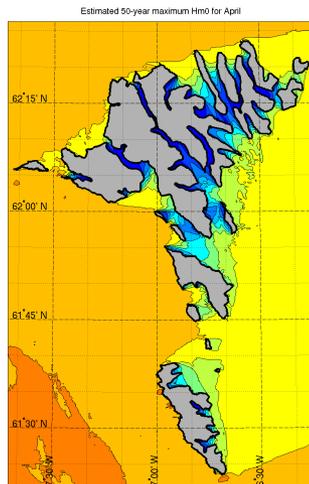
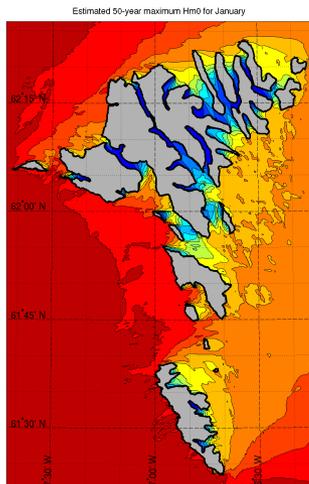
Januar

Apríl

Juli

Oktober

Alt árið



Atlasið verður web-tøkt seinni í ár.

# Alduatlas: 50 ára meting

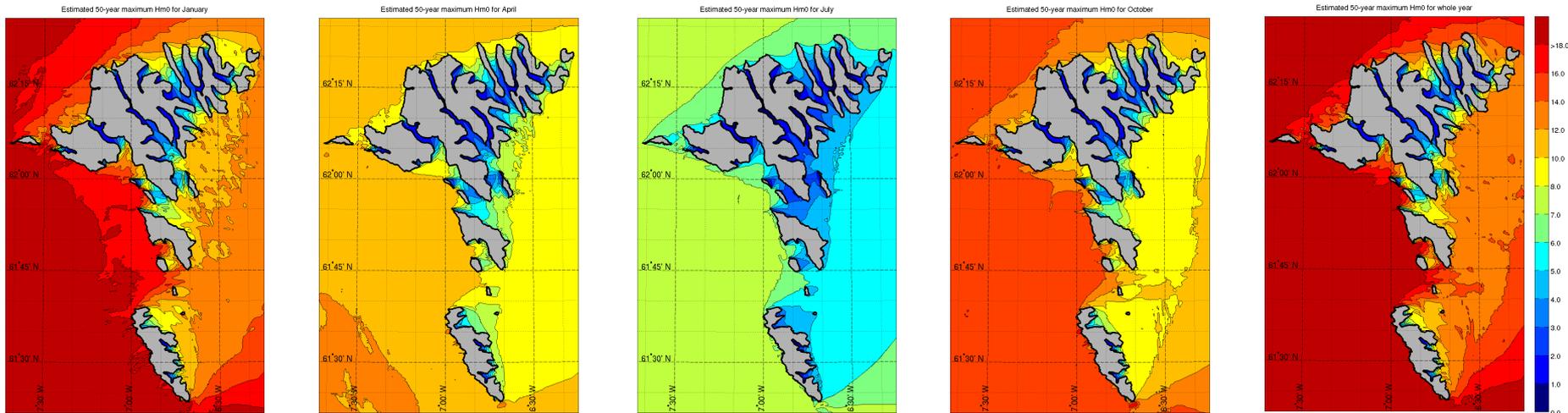
Januar

Apríl

Juli

Oktober

Alt árið

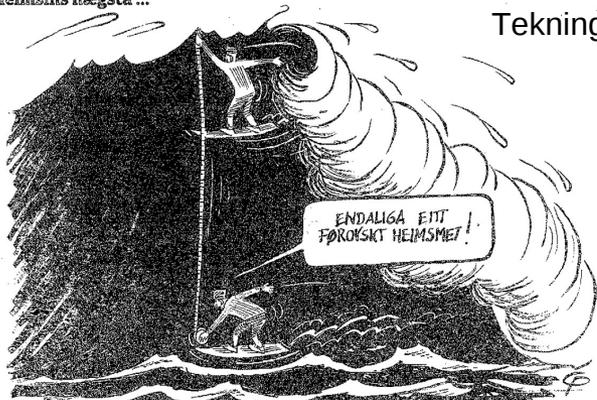


Atlasið verður web-tøkt seinni í ár.

# Aldumátingar á Landgrunninum

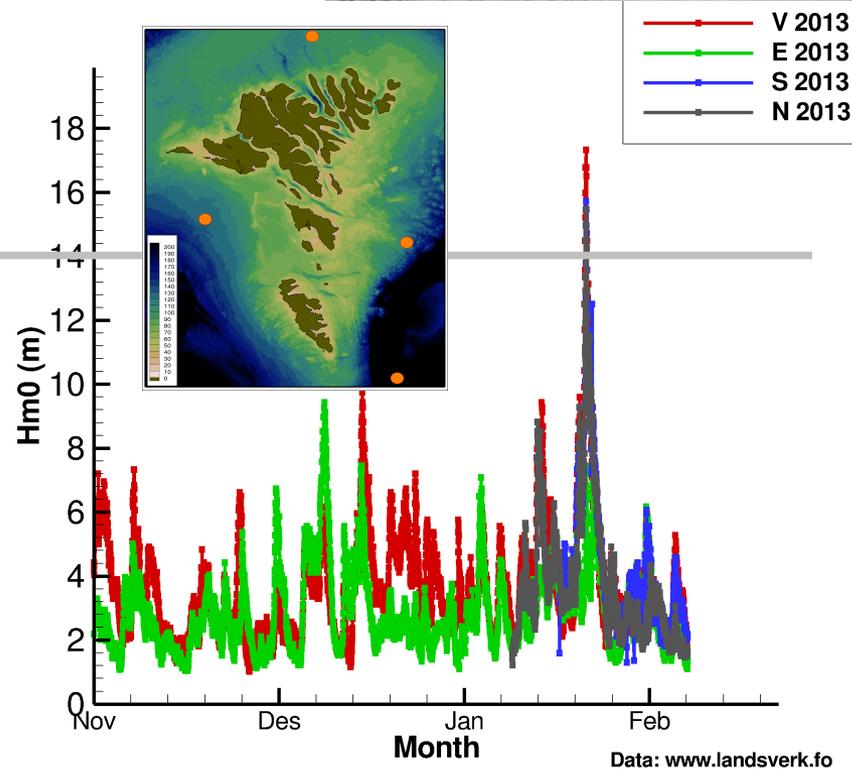
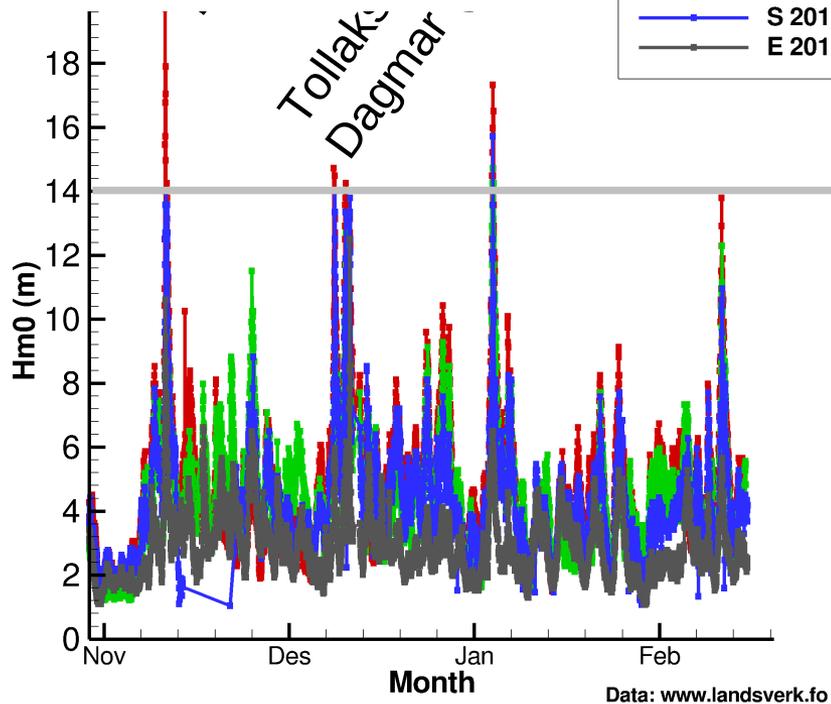
32 | Sosialurin Huginn og víkverklingar - send sms til 223000 Miðdagur 30. november 2011 - Nr. 139

Heimsins hægsta ...



Tekning: Óli P., Sosialurin

Mynd: Tyr lutænastan, AA.

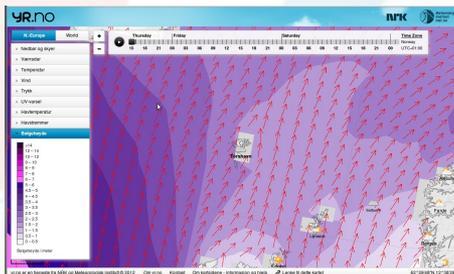
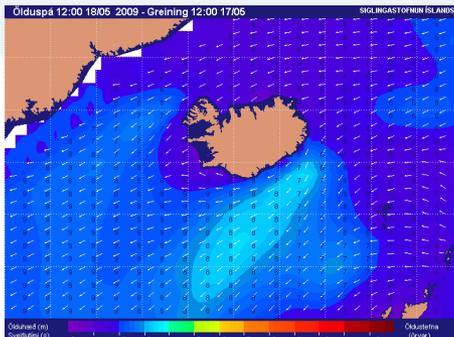


# 'Aldumátingar' tøkjar alla staðni

- ein ávegis skipan

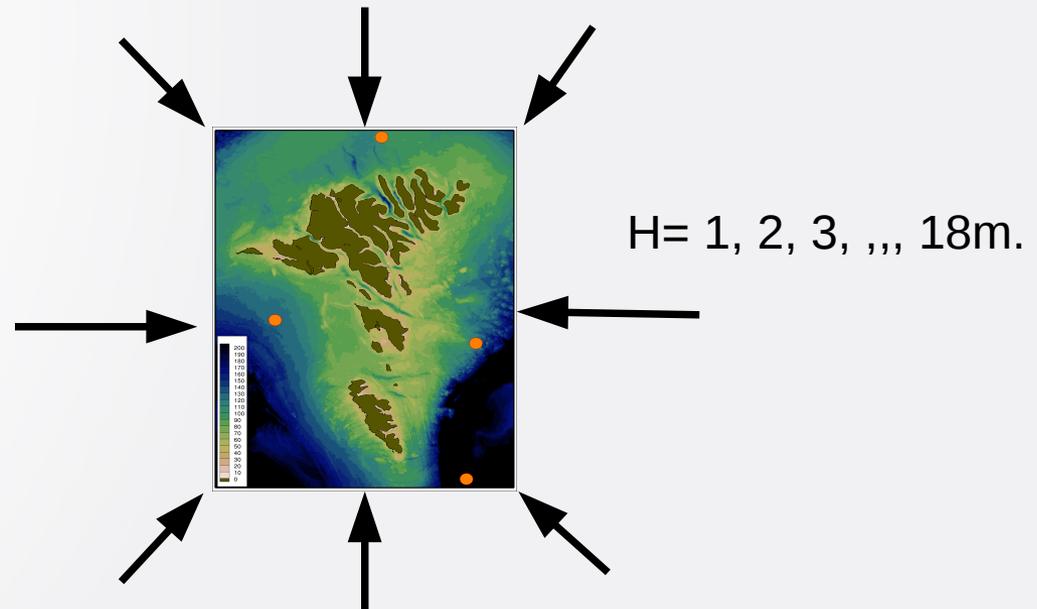
Við Føroyar eru hesar forsagnir brúkiligar úti á opnum havi, men ikki inni á grunnum.

Grannalondini:



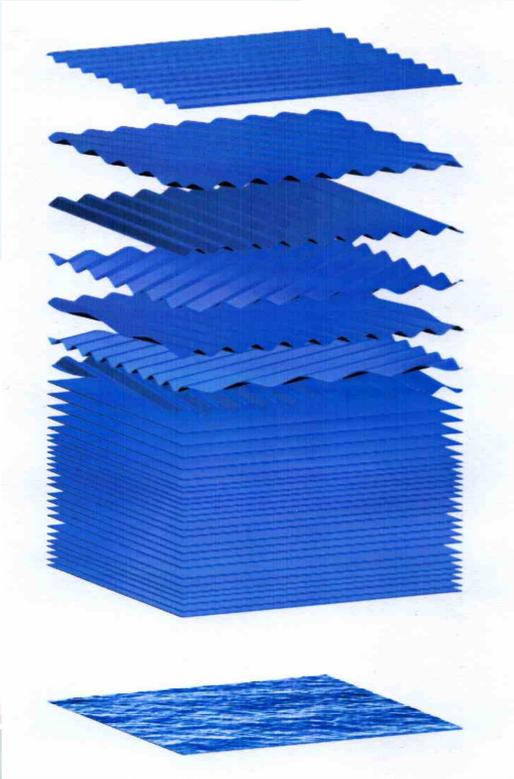
**Ein heimlig 'poor nation' skipan:**

Rokna aldustøðuna frá 16 rætningum fyri aldu hæddir fyri hvønn m frá 1 til 18 m. Í alt  $16 \times 18 = 288$  útrokningar.



Brúka hetta at flyta úrslit frá Landgrunninum og inn á eitthvørt øki.

# Alda á sjónum



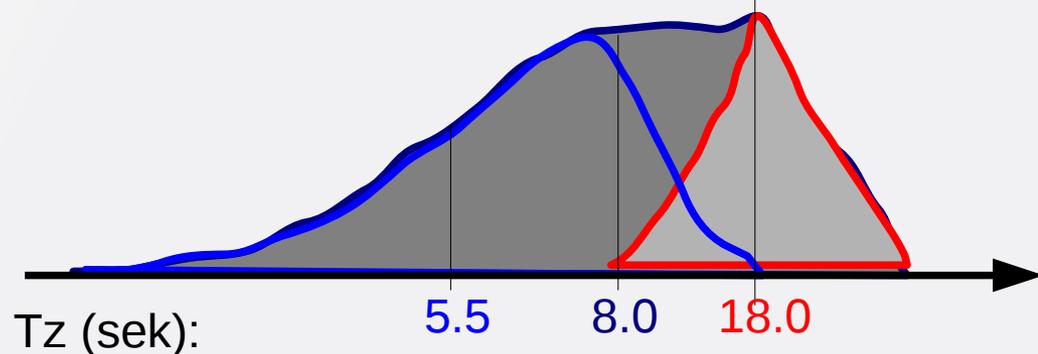
## Aldumátarar

Stað	Dato	Tið	Hædd m	Longd m	Tp s	Æitt °	Hiti °C	Battari	GPS desimal°
Vestanfyrri	21/02	13:33	2.6	174	11	201	7		61.8615 N / -7.4527 V
Norðanfyrri	21/02	13:49	1.7	174	11	253	8		62.5070 N / -6.7968 V
Eystanfyrri	21/02	13:32	1.8	128	9	190	7		61.7798 N / -6.2162 V
Sunnanfyrri	21/02	13:56	2.4	155	10	224	5		61.3012 N / -6.2753 V

Tp (sek):

**Total = Vindalda + Havalda**

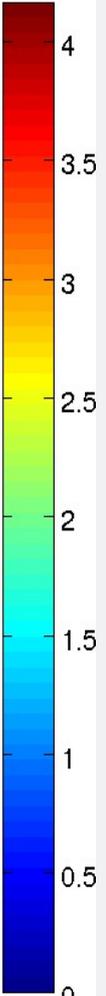
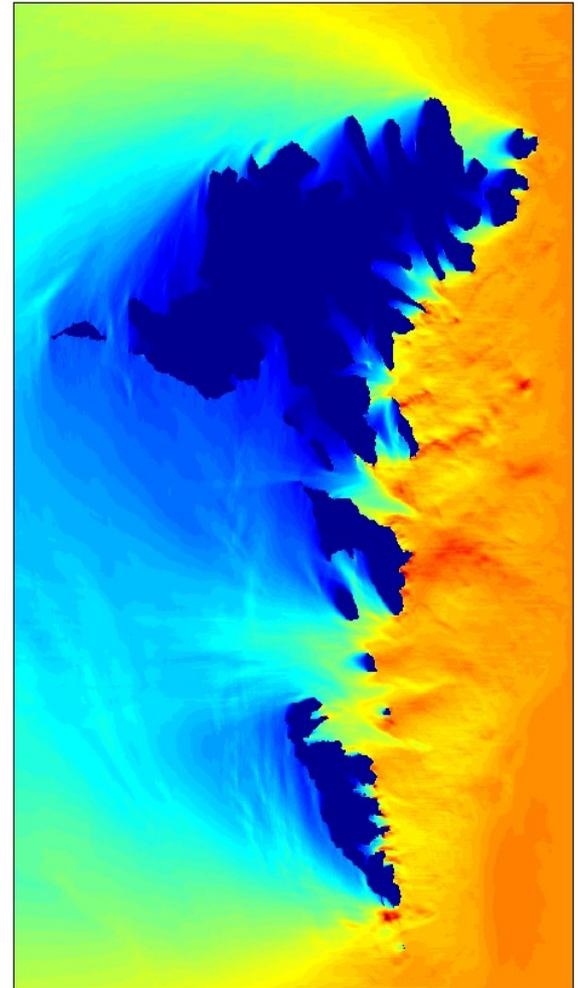
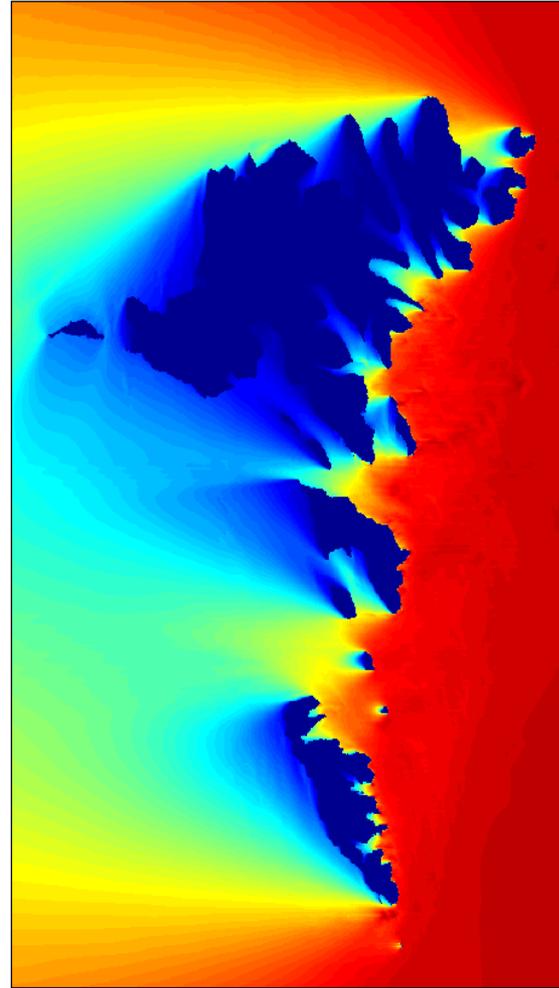
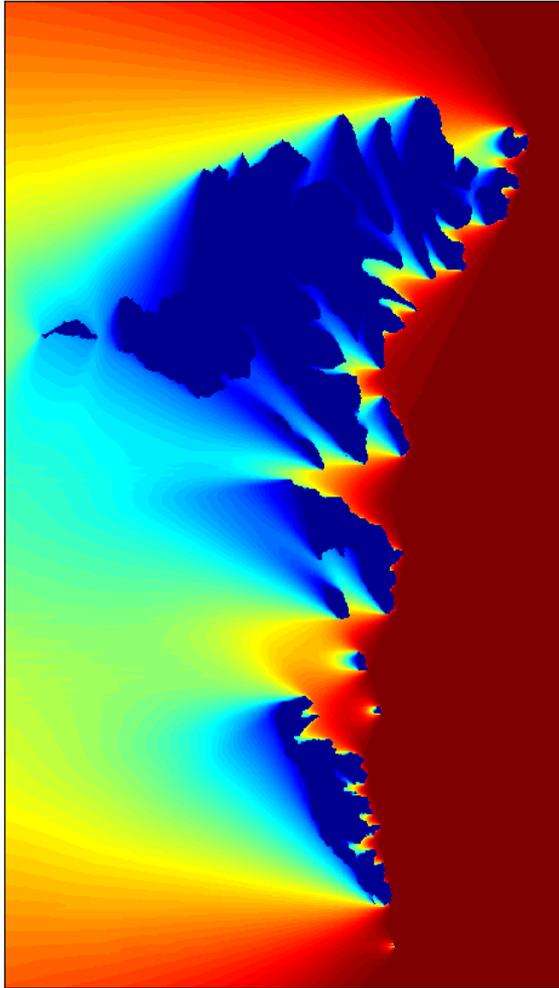
18.0



Vind alda ( $T_{m-10}=5.5$  sek)

Total ( $T_{m-10}=8.0$  sek)

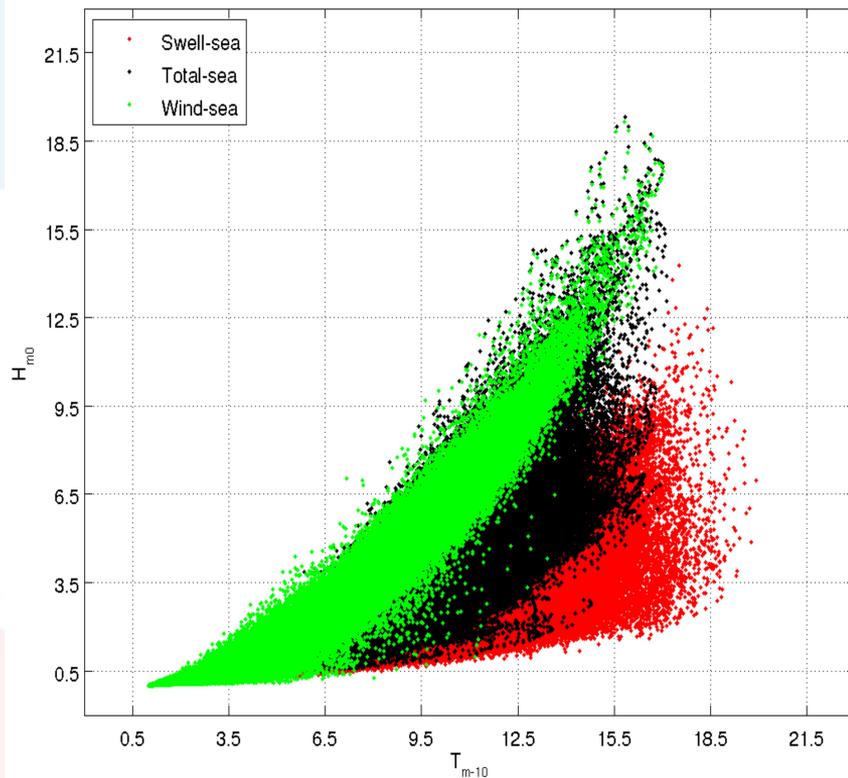
Havalda ( $T_{m-10}=18.0$  sek)



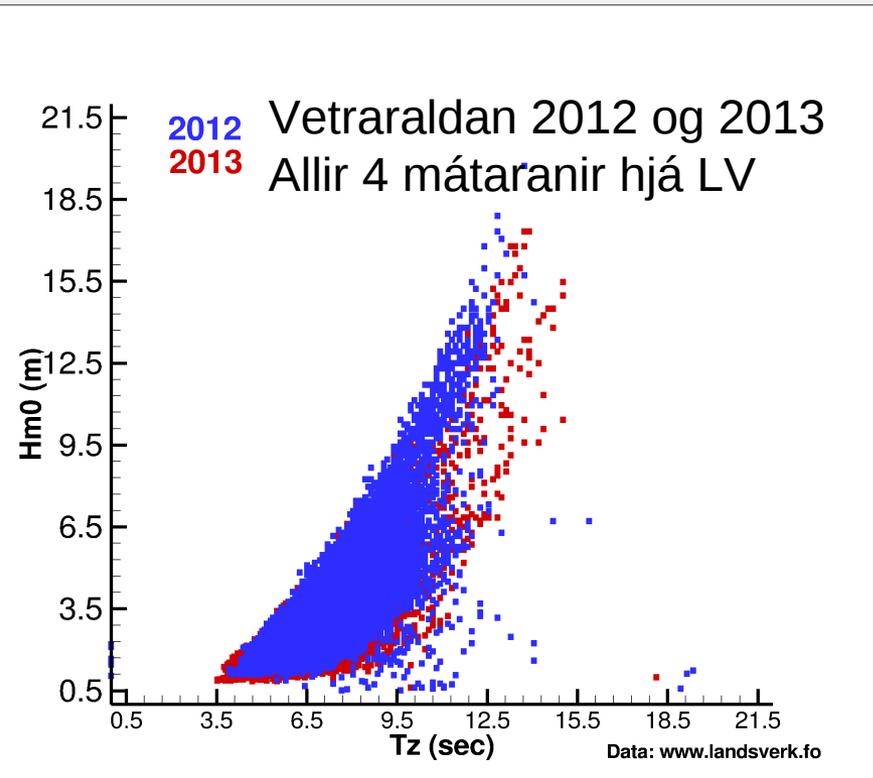
$H_{m0}$  á Gøtuvík: 1.4 m

1.0 m

0.5 m



Mynd: Niclasen, NVDRit 2012:06



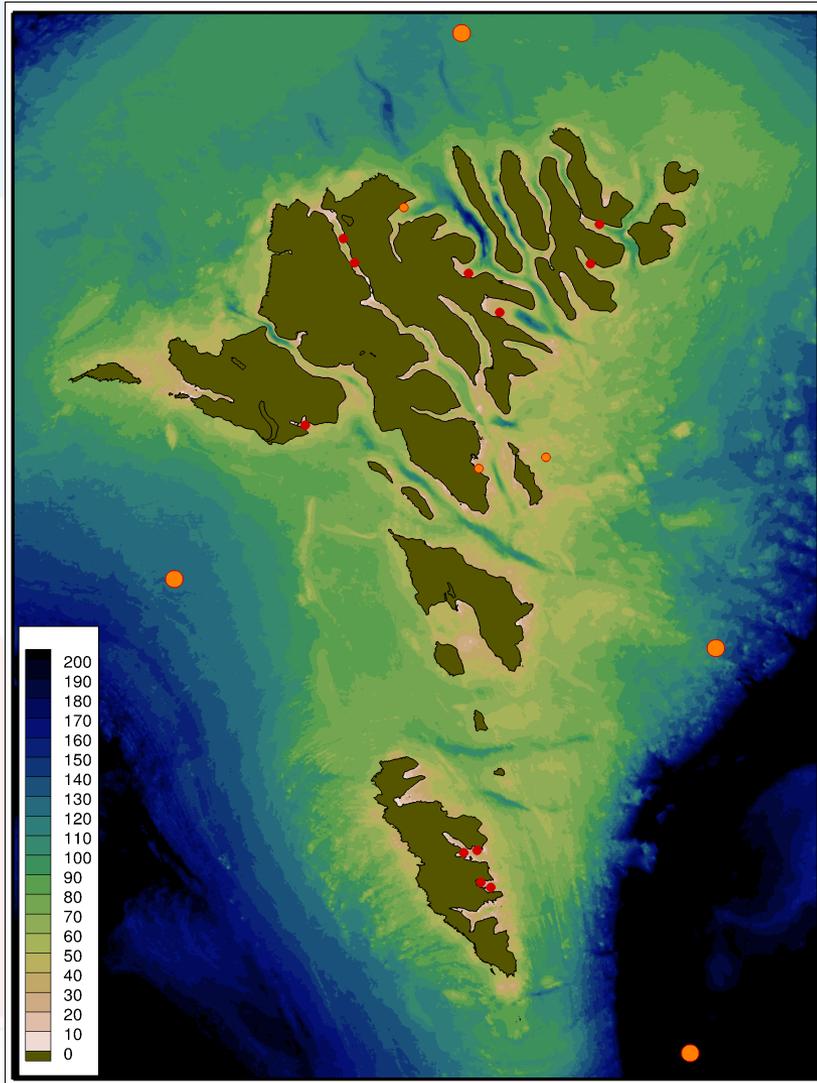
### Gjørðar simuleringar:

dH=1 m frá 1 til 18 m  
dT = 1 sek frá 1 til 18 dek.  
Kós: fyri hvørjar 15°



Í vind- og hav aldu økinum,  
Tils. knapt 4000 simuleringar.

# Næsta stigið



- Royna skipanina ímóti aldumátingunum, sum eru/verða gjørdar á alifirðunum.
- Gera enn neyvari alduatlas, t.e. neyvari lýsing av verandi og nýggjum aliøkjum.
- Um alda hefur týdning fyri resuspensió, sum okkurt bendir á, ber til at gera kort av hesum.

# Kort við útgerðsklassum

Norska NS9415:

## Sjóvarfals Rák

Alda

			a	b	c	d	e
	Hs (m)	Tp (s)	0.0-0.3	0.3-0.5	0.5-1.0	1.0-1.5	>1.5
A	0.0-0.5	0.0-2.0	Aa	Ab	Ac	Ad	Ae
B	0.5-1.0	1.6-3.2	Ba	Bb	Bc	Bd	Be
C	1.0-2.0	2.5-5.1	Ca	Cb	Cc	Cd	Ce
D	2.0-3.0	4.0-6.7	Da	Db	Dc	Dd	De
E	>3.0	5.3-18.0	Ea	Eb	Eb	Ed	Ee

Er neyðugt við fleiri/øðrvísi klassum í Føroyum?

# Samandráttur

(v)

## ➤ Streymmátingar

- Í ASAF: 21
- Aðrar: 15+

**Verður  
liðugt  
í 2014**

(v)

## ➤ Aldumátingar

- Í ASAF: 11
- Aðrar 1+ (+ brúka LV mátingarnar)

v

## ➤ Alduatlas (Gjort av B. Niclasen á Fróðskaparsetrinum)

- Hagfrøðitøl frá 44 ára koyring
- Umframt umfatandi dátubasi gjørdur.

v

## ➤ Sjóvarfalsatlas (Í samstarvi við B. Niclasen á Fróðskaparsetrinum)

Klárt at byrja

## ➤ SpjaðingarAtlas

Klárt at byrja

## ➤ Útgerðsstandard kort

Nógv er klárt

## ➤ Berievni hjá firðunum

?

## ➤ 3D-simulering av Sundalagnum



Takk fyri!