EXPERIENCES IN MIGRATING WINDSIM CALCULATIONS TO CLOUD

Utku Unal

Statkraft Wind & Site Team

23.06.2021

Statkraft

The need

OLD SERVER

2 Windsim 9 Licenses on a

36 processor / ca. 650 MB RAM

1 active user

Team grew up to 4 people

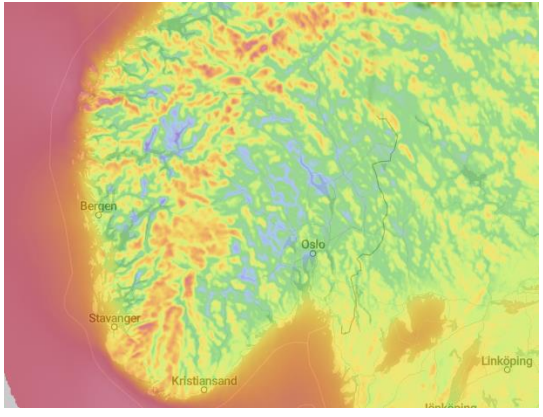
Number of pipeline projects exploded

Only 2 simultaneous windfield runs

Ca. 3 days of calculation

Communication necessary between us

The need - Approach



+

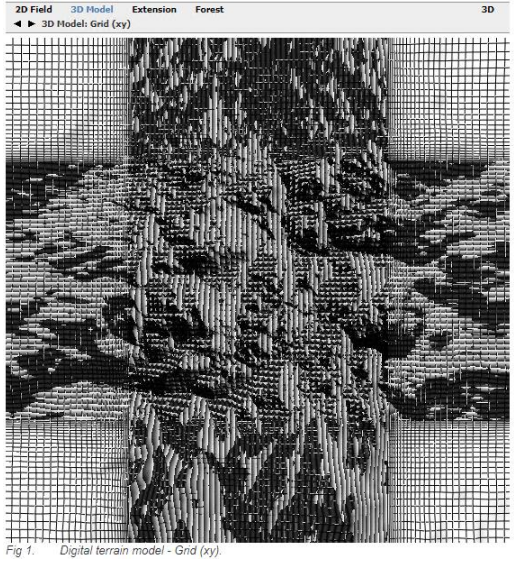
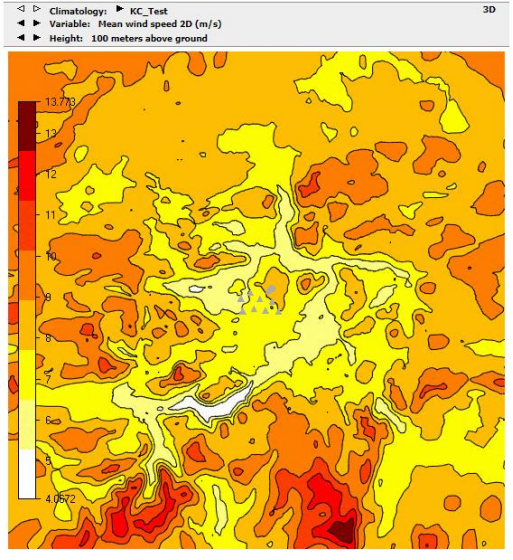


Fig 1. Digital terrain model - Grid (xy).

→



Downscaled mesoscale data as input

Windsim Model

Wind Resources for AEP calculations

Statkraft

First steps

The first idea was to increase the number and capacity of the server

More RAM More CPU

Request from IT

windsim

?

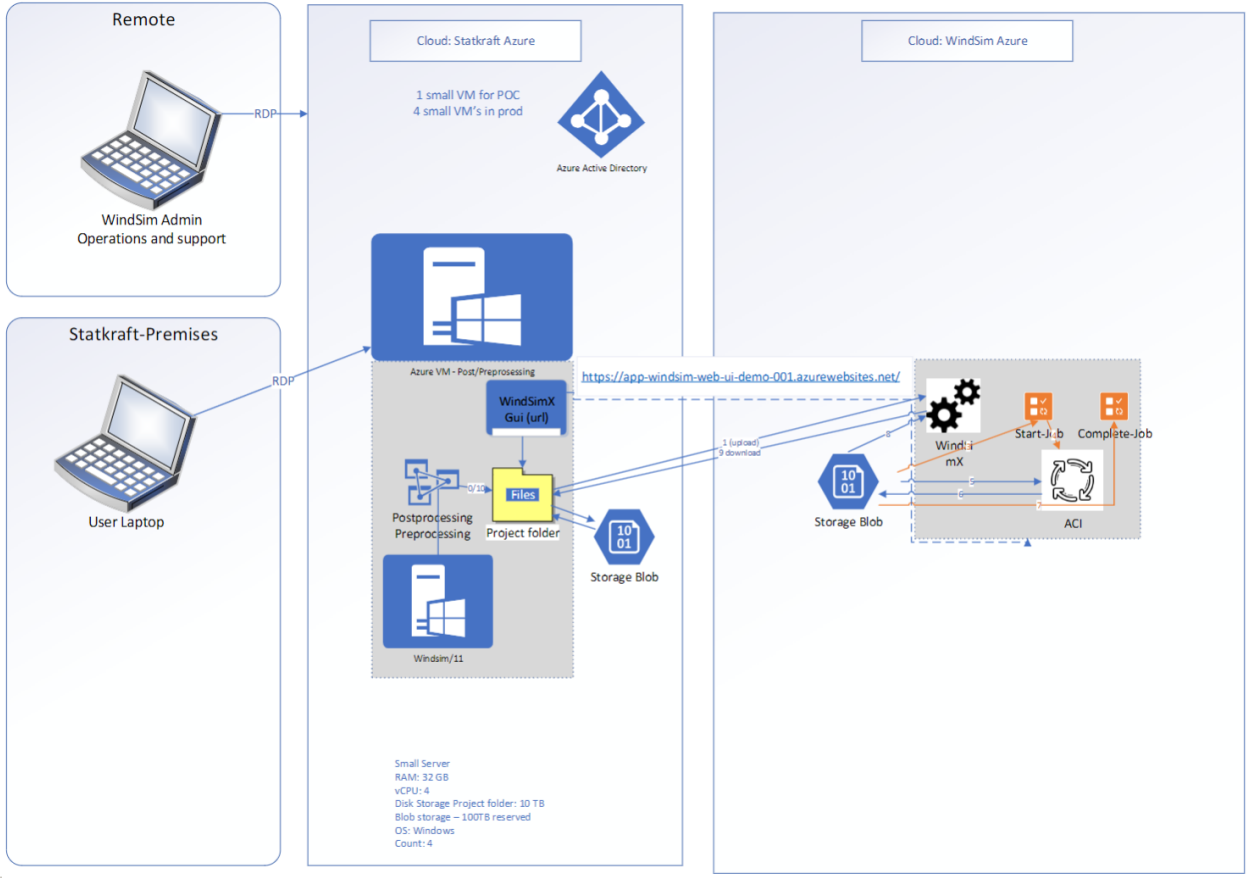
Statkraft

IT Process

IRAM 2 (Information Risk Assessment Methodology) Process

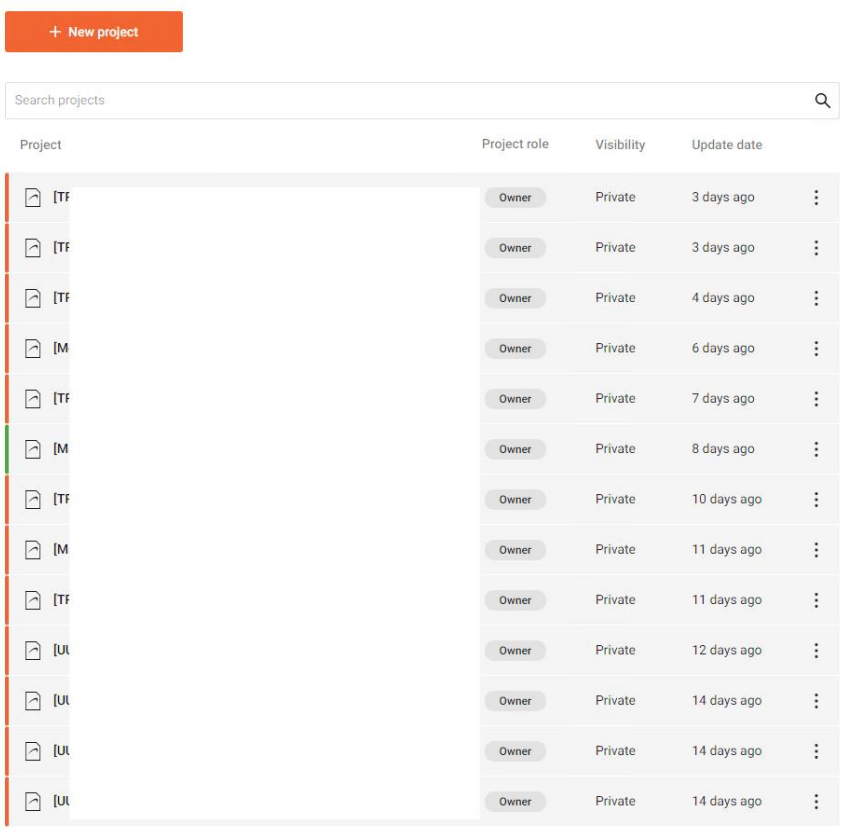
- As W&S Engineers this process was an alien for us
- Statkraft IT managed the process
- Information security was of paramount importance
- Met mast data and Project Information
- Not only for W&S tools but for every Statkraft tool in cloud

Current Setup



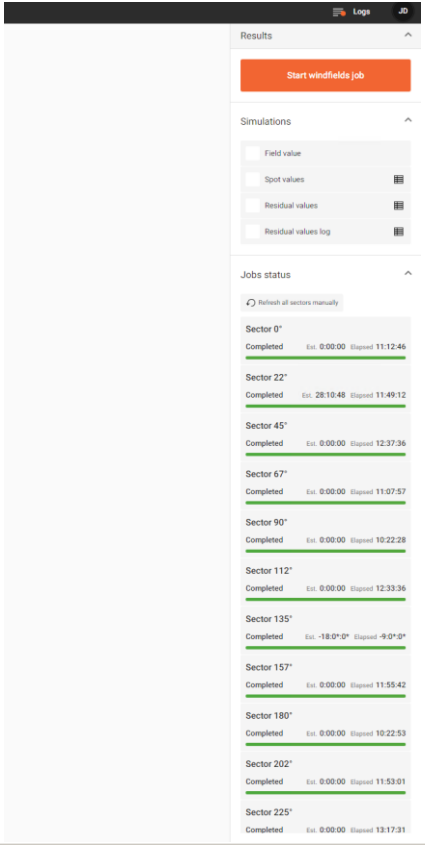
Statkraft

Getting used to Windsim X on cloud



Statkraft

Getting used to Windsim X on cloud



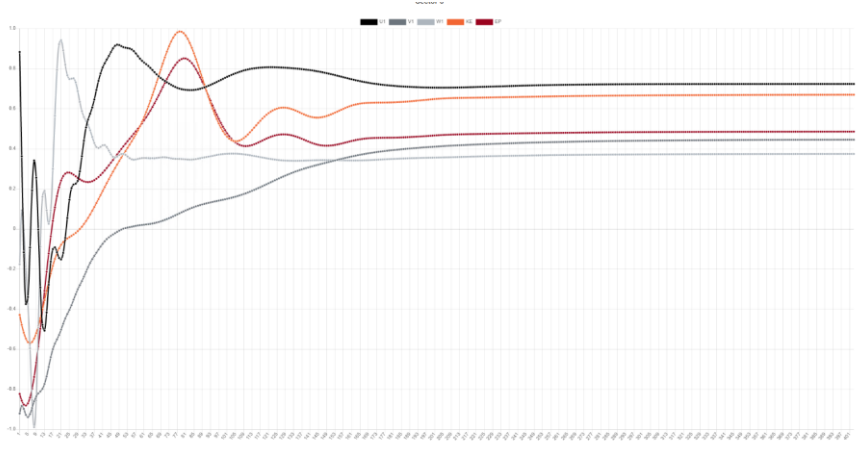


Table 1. *Boundary and initial conditions for the wind field simulation.*

Date	Time	Sector	Solver	Conwiz	#iter	#iter exe	Time exe	(S)
15.06.21	21:18:29	0	GCV	No	1000	404	11:37:55	(C)
15.06.21	21:54:14	22	GCV	No	1000	421	12:13:44	(C)
15.06.21	22:47:27	45	GCV	No	1000	473	13:06:49	(C)
15.06.21	21:14:37	67	GCV	No	1000	411	11:34:08	(C)
15.06.21	20:29:13	90	GCV	No	1000	374	10:47:47	(C)
15.06.21	22:50:09	112	GCV	No	1000	458	13:07:30	(C)
16.06.21	00:24:54	135	GCV	No	1000	520	14:42:16	(C)
15.06.21	22:00:07	157	GCV	No	1000	427	12:19:29	(C)
15.06.21	20:35:40	180	GCV	No	1000	378	10:54:10	(C)
15.06.21	22:03:07	202	GCV	No	1000	430	12:21:29	(C)
15.06.21	23:37:26	225	GCV	No	1000	491	13:56:48	(C)
15.06.21	22:26:45	247	GCV	No	1000	444	12:45:12	(C)
15.06.21	21:28:38	270	GCV	No	1000	409	11:47:18	(C)
15.06.21	23:49:03	292	GCV	No	1000	496	14:08:28	(C)
16.06.21	01:36:53	315	GCV	No	1000	567	15:55:41	(C)
15.06.21	23:03:38	337	GCV	No	1000	473	13:23:00	(C)

Statkraft

THANK YOU, QUESTIONS?

For further info;

utku.unal@statkraft.com

Statkraft