

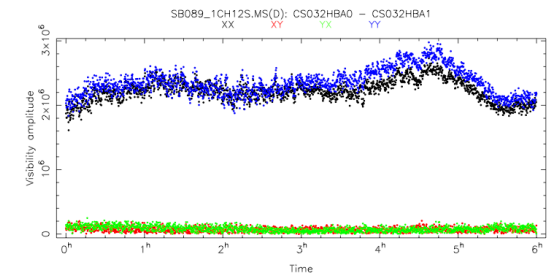
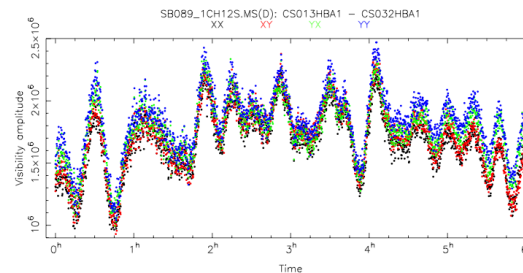
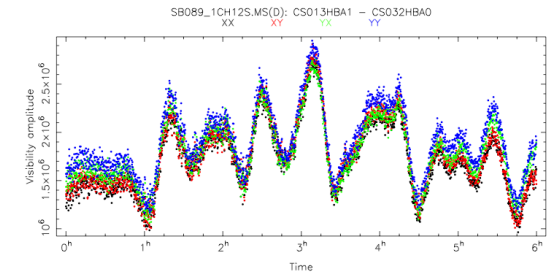
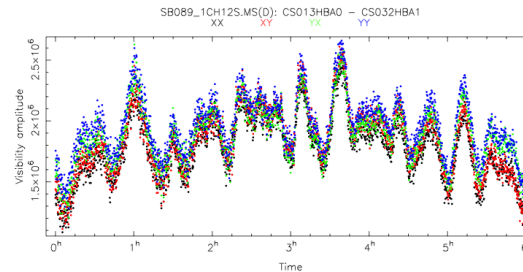
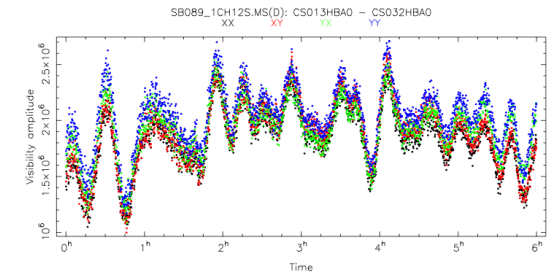
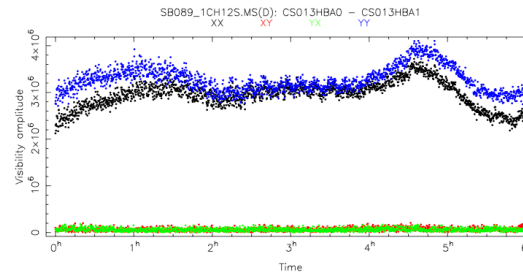
# What is wrong with CS013 (HBA) ?

All tile-dipoles should be oriented like a  $\times$   
 but in CS013 they are all oriented like  $+$

Due to  $45^\circ$  error we receive equal correlated power in all 4 cross correlations:

XX XY YX YY

This can be corrected in software but **for one direction only !**, i.e. not over a very wide FOV

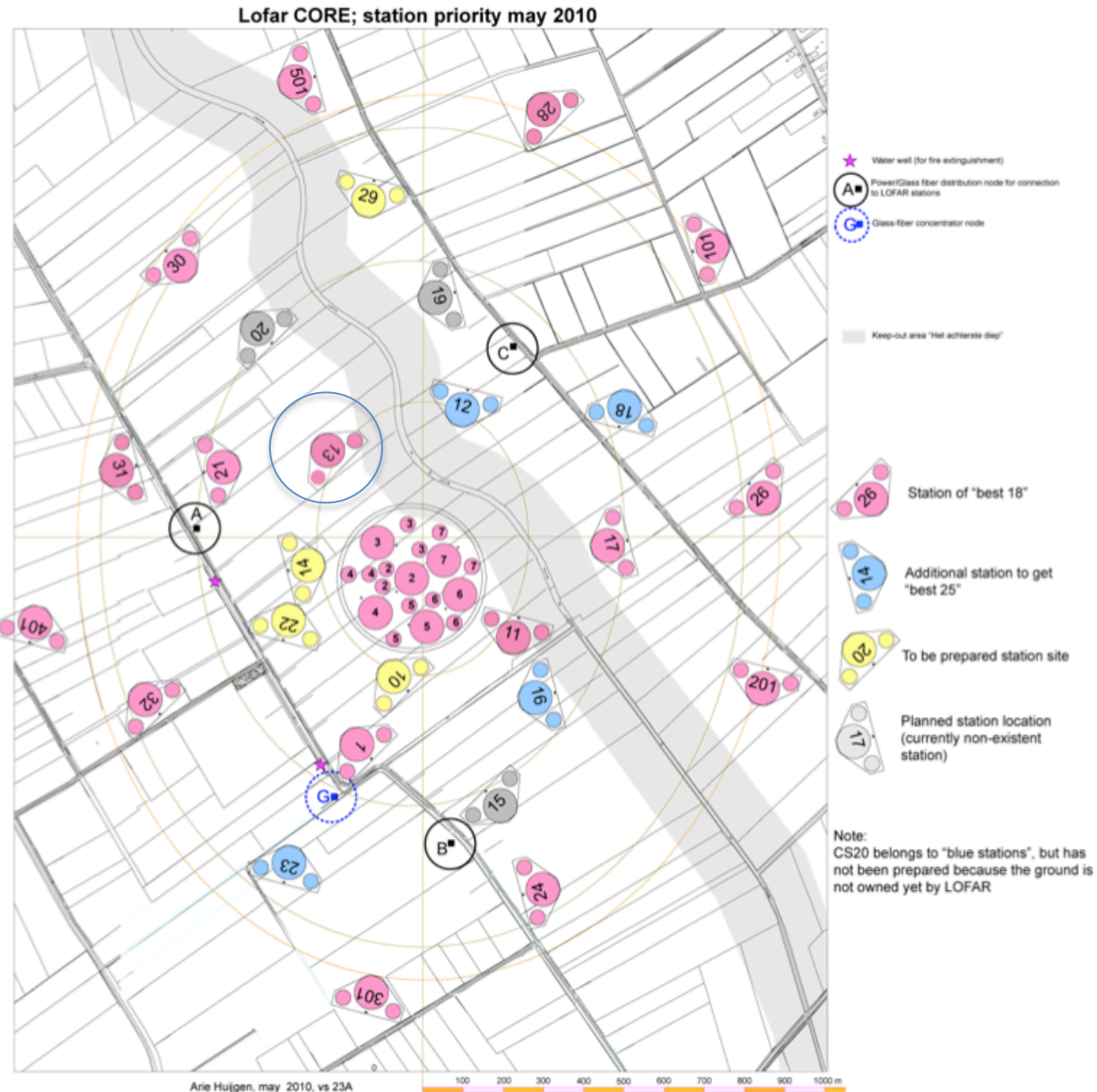


3C196: baselines CS013-HBA0+1 --- CS032-HBA0+1

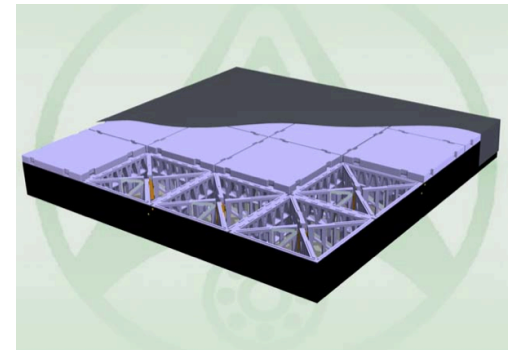
# Where is CS013 ?

~350 m NW from the center of the Superterp

- Important station to improve core uv-coverage and achieve good sensitivity for low surface brightness emission (e.g. EoR,...)
- AARTFAAC will use elements outside Superterp



# A tile (5x5m) view from the bottom side, during roll-out (2010)



16 x 2 pol coax cables from dipoles find their way to the **X and Y summator boards** located at the edge of the tile

Estimate of time needed: ~ 2 tiles/day/team (of 4) (?) .

For  $2 \times 24 = 48$  tiles  $\rightarrow$  24 team-days needed  $\rightarrow$  doodle poll initiated on Oct 8 (50 people approached, 27 responded, 200+ emails)

Doodle

★ Features    👑 Pricing    Sign up    Log in

24 of 45 invitees Who is missing?	October 2015									November 2015													
	Wed 21	Thu 22	Fri 23	Mon 26	Tue 27	Wed 28	Thu 29	Fri 30	Mon 2	Tue 3	Wed 4	Thu 5	Fri 6	Mon 9	Tue 10	Wed 11	Thu 12	Fri 13	Mon 16	Tue 17	Wed 18	Thu 19	Fri 20
Ger de Bruyn	✓	✓	☑	✓	✓	✓	✓	☑	✓		✓	✓	☑	✓				☑					
Sarod Yatawatta	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
M.J.Kuiack	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
mevius	✓	☑		✓	✓				✓		✓	✓		✓	✓	✓				✓		✓	
Sander Bus			✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vibor	✓	☑	✓		☑	✓	☑				✓		✓					✓					
Aayush Saxena					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Yvette Cendes	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Abhik Ghosh				☑		✓			☑	✓			✓		✓	☑		✓					
André Offringa				☑	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
R.A.M.J. Wijers	✓	✓				✓		✓					✓			✓					✓		
Cees Bassa	☑	☑		✓	✓	✓	✓	✓		✓	✓	✓			✓	✓	✓		✓	✓	✓	✓	
Sotiris Sanidas	✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ziggy Pleunis			✓	✓	✓				☑	✓				✓	✓			✓	✓				✓
Vlad Kondratiev	☑							☑		✓	✓		✓		✓	✓		✓		✓	✓		✓
Anne Archibald	☑	✓	✓	✓	✓	☑	✓	✓	✓	✓	✓	☑	✓	✓	✓	☑	✓	✓	✓	✓	☑	✓	✓
pandey		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓									
Khan MB Asad							✓	✓			✓	✓	✓			✓	✓	✓			☑	☑	☑
sarrvesh.ss		✓	✓		✓	☑	✓		✓	✓					✓		✓	✓	✓	✓	✓	✓	✓
Leon Koopmans											✓			☑	✓								
morabito				☑	✓	✓	✓	✓	☑	☑	☑	☑								☑	☑		☑
Alex Clarke											✓	✓	✓										
Folkert Huizinga		✓					✓					✓					✓					✓	
Antonia Rowlinson		✓			✓				✓					✓		✓			✓	✓	✓		



Thursday 22 October 2015

Han Wessels  
Henri Meulman  
Tonjes  
Zabet

+ Bianca Bult, Ger de Bruyn

Anne Archibald  
Antonia Rowlinson  
Ger de Bruyn  
Mark Kuiack  
Ralph Wijers  
Sotiris Sanidas  
Sarod Yatawatta  
Sarrvesh  
Yvette Cendes





Next day, much better for field work !





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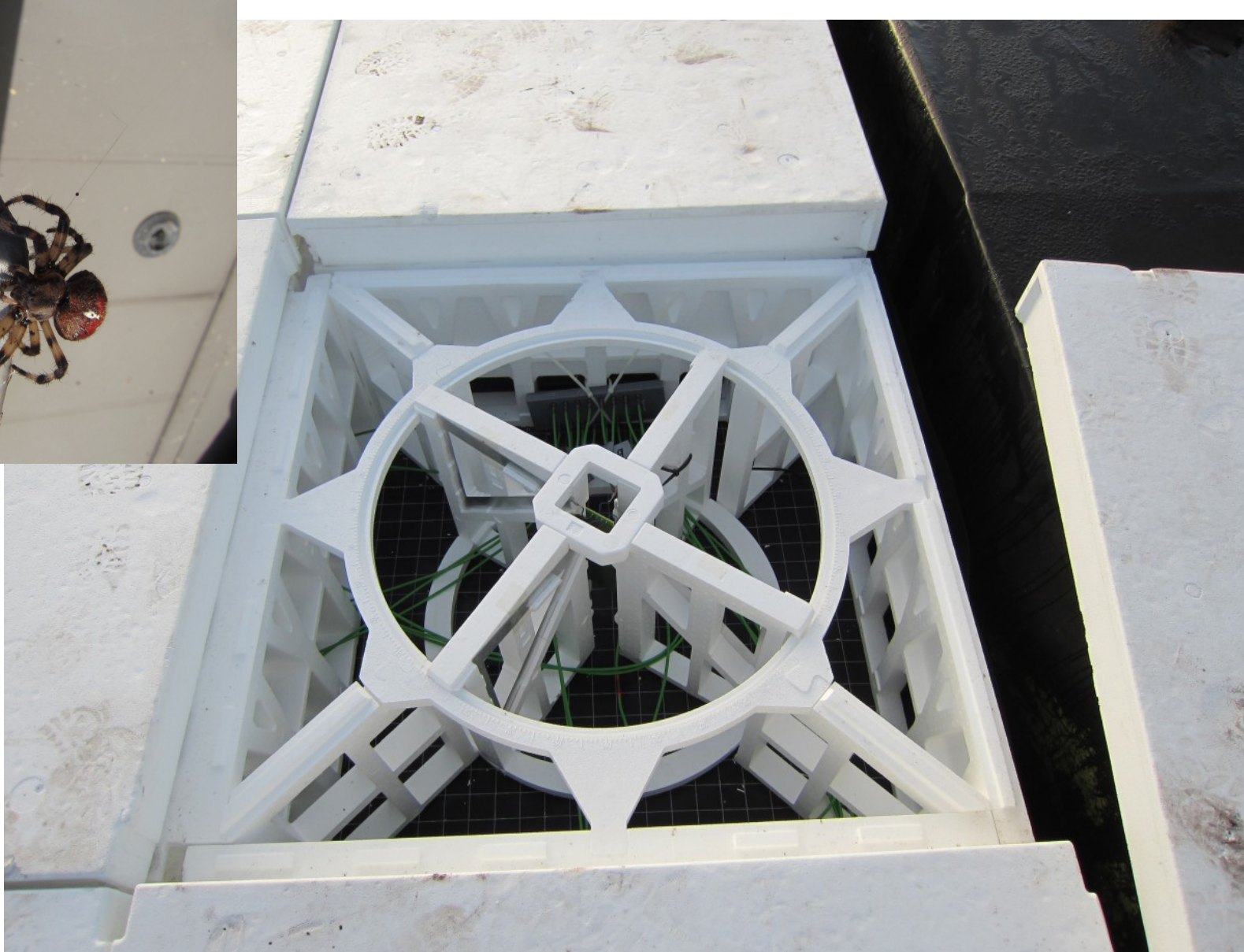


Friday 23 October 2015

Anne Archibald  
Maaijke Mevius  
Pandey  
Sotiris Sanidas  
Sander Bus  
Sarod Yatawatta  
Tammo-Jan Dijkema  
Vibor Jelic  
Ziggy Pleunis





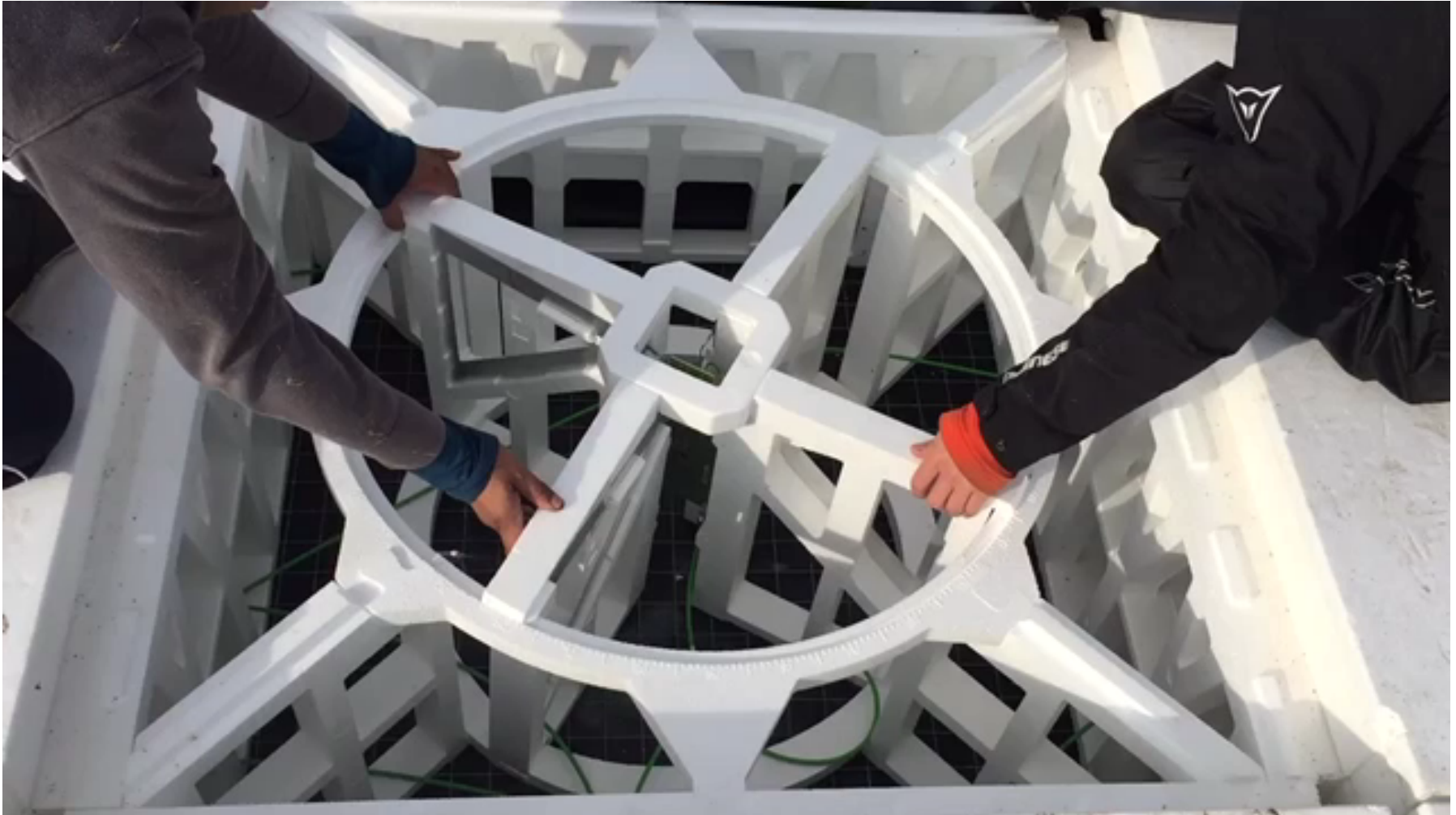


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Do this 48 x 16 times , cutting EPS ('piepschuim') where necessary, use ducktape to fix weak connections







# Conclusions:

Project completed well within schedule (factor 3-4 faster !)

Useful insights on how LOFAR HBA antenna-tiles work

Sensitivity improvement between 4.5 to 8 % (depending on uv-plane selection)

Left to do:

Verify signals, polarizations (Henri)      Done on Tuesday !  
Conduct station holography (Michiel)