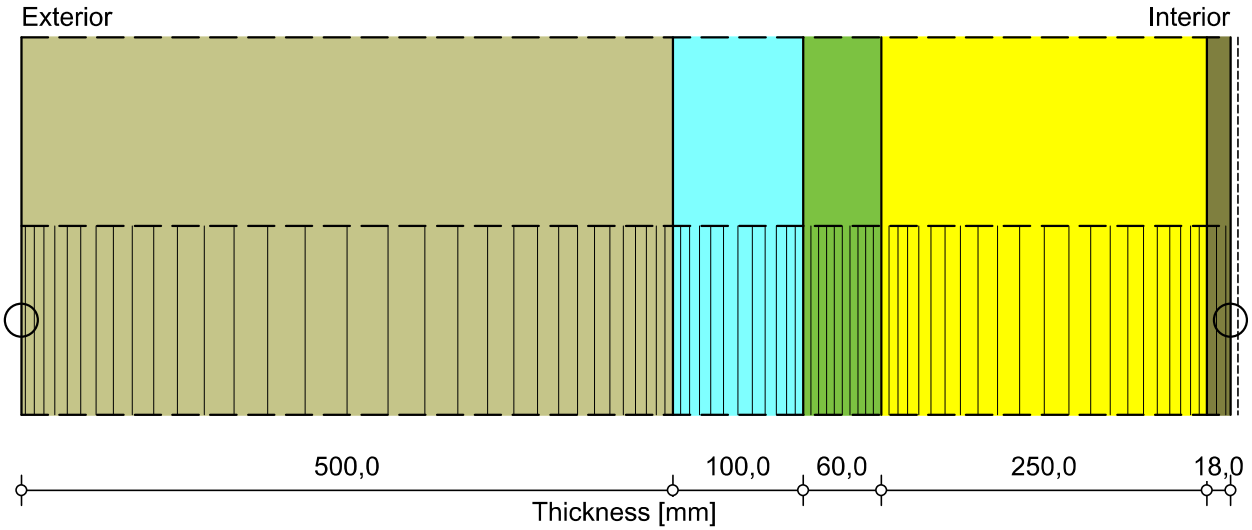
Project Data

Project Name	Stirley Farm Stone Wall
Project Number	231012
Client	Environmental Construction Products Ltd
Contact Person	Bill Butcher
City/Zip	Huddersfield HD7 4JW
Street	Heath House Mill o Heath House Lane o Golcar
Phone	01484 461705
Fax	
e-mail	Bill Butcher [bill@greenbuildingstore.co.uk]
Responsible	
	Niall Crosson Technical Engineer, BTech,MEngSc,MIEI
Date	23/10/2012

Component Assembly

Case: Stone wall with internal Timberframe stud and vented cavity



◯ - Monitor positions

Materials :

- Sandstone
- Air Layer 100 mm
- GUTEX Multitherm
- Mineral Wool (heat cond.: 0,04 W/mK)
- Oriented Strand Board (density 615 kg/m³)

Total Thickness: 0,918 m
R-Value: 8,28 m²K/W
U-Value: 0,118 W/m²K

Boundary Conditions

Exterior (Left Side)

Location: uk_leeds_1557.try
Orientation / Inclination: South-West / 90 °

Interior (Right Side)

Indoor Climate: EN 15026
Normal Moisture Load

Surface Transfer Coefficients

Exterior (Left Side)

Name	Unit	Value	Description
Heat Resistance	[m²K/W]	0.0588	External Wall
Sd-Value	[m]	----	No coating
Short-Wave Radiation Absorptivity	[-]	0.6	Stucco, dark (aged)
Long-Wave Radiation Emissivity	[-]	0.9	Stucco, dark (aged)
Adhering Fraction of Rain	[-]	0,7	According to inclination and constru

Interior (Right Side)

Name	Unit	Value	Description
Heat Resistance	[m²K/W]	0.125	External Wall
Sd-Value	[m]	0.1	Gypsum board

Explicit Radiation Balance

Exterior (Left Side)

Name	Value
Enabled	yes
Heat Transfer Coefficient includes long-wave radiation	yes
Terrestrial Short-Wave Reflectivity [-]	0.20
Terrestrial Long-Wave Emissivity [-]	0.90
Terrestrial Long-Wave Reflectivity [-]	0.10
Cloud Index [-]	0.66

Sources, Sinks

Air Layer 100 mm

Type	Name
Air Change	Source1

Results from Last Calculation

Status of Calculation

Calculation: Time and Date	26/10/2012 10:31:41
Computing Time	6 min,13 sec.
No. of Convergence Failures	27
No. of Rain Absorption Failures	0

Check for numerical quality

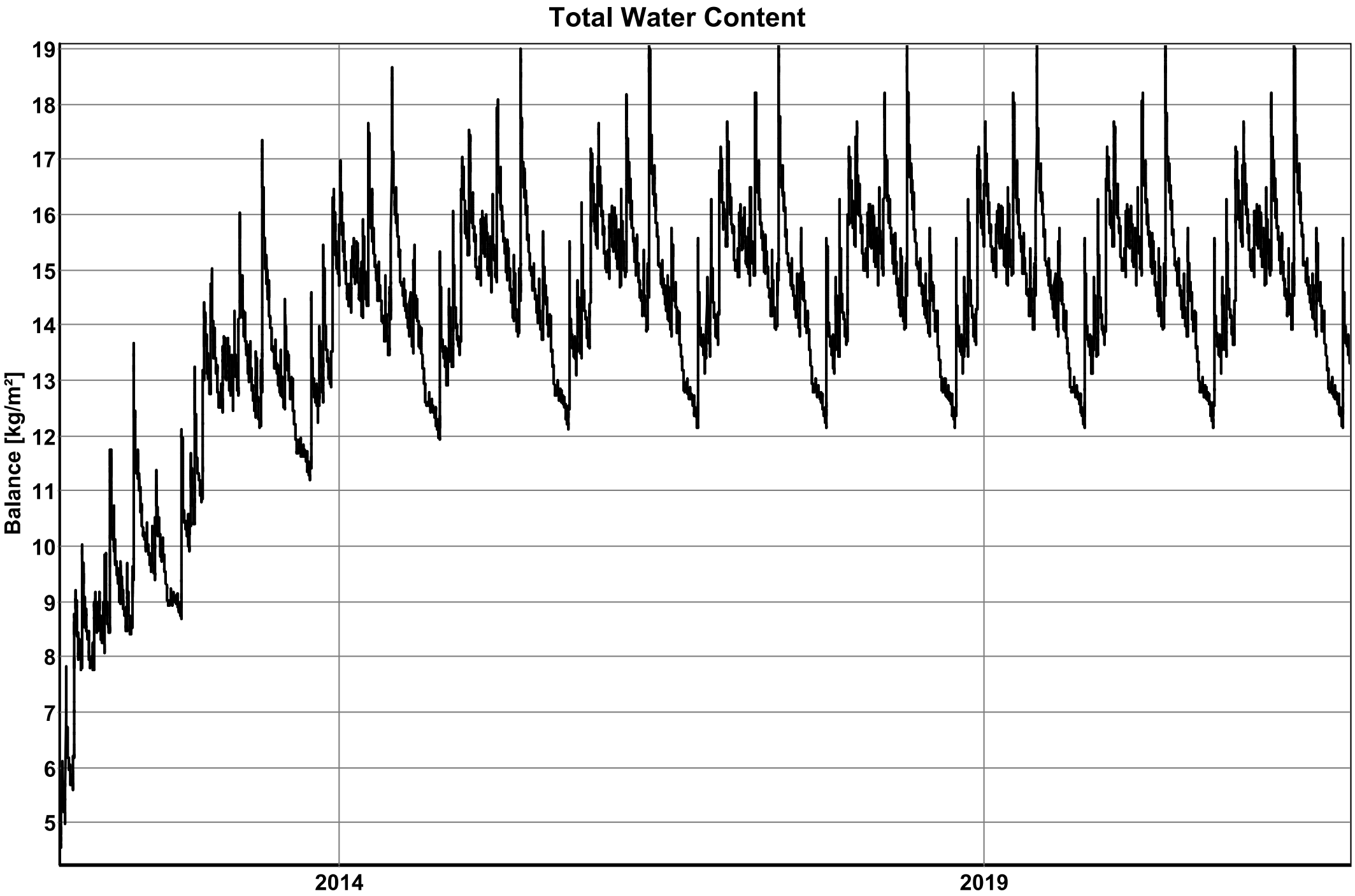
Integral of fluxes, left side (kl,dl) [kg/m²]	75,22 -43,61
Integral of fluxes, right side (kr,dr) [kg/m²]	-0,08 -4,02
Balance 1 [kg/m²]	8,75
Balance 2 [kg/m²]	8,73

Water Content [kg/m³]

Layer/Material	Start of Calc.	End of Calc.	Min.	Max.
Sandstone	2,61	21,84	2,53	33,35
Air Layer 100 mm	1,88	0,63	0,34	6,85
GUTEX Multitherm	17,30	15,01	9,68	20,04
Mineral Wool (heat cond.: 0,04 W/mK)	1,79	0,65	0,41	1,79
Oriented Strand Board (density 615 kg/m³)	92,00	69,36	62,73	92,00
Total Water Content [kg/m²]	4,63	13,3	4,24	19,09

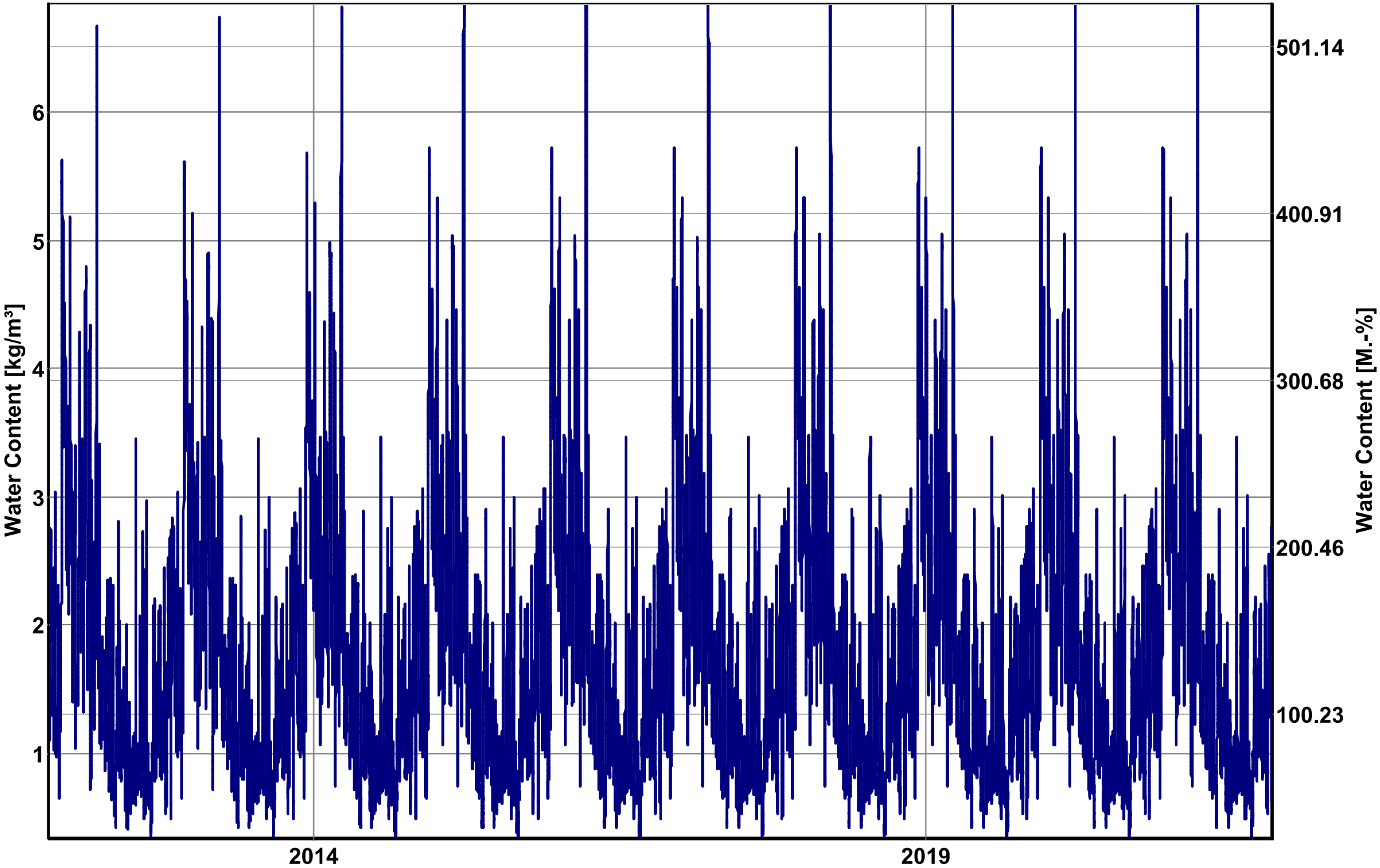
Time Integral of fluxes

Heat Flux, left side [MJ/m²]	348,76
Heat Flux, right side [MJ/m²]	-448,08
Heat Sources [MJ/m²]	-800,44
Moisture Fluxes, left side [kg/m²]	31,59
Moisture Fluxes, right side [kg/m²]	-4,02
Moisture Sources [kg/m²]	-26,98
Clipped Moisture Sources [kg/m²]	0,0

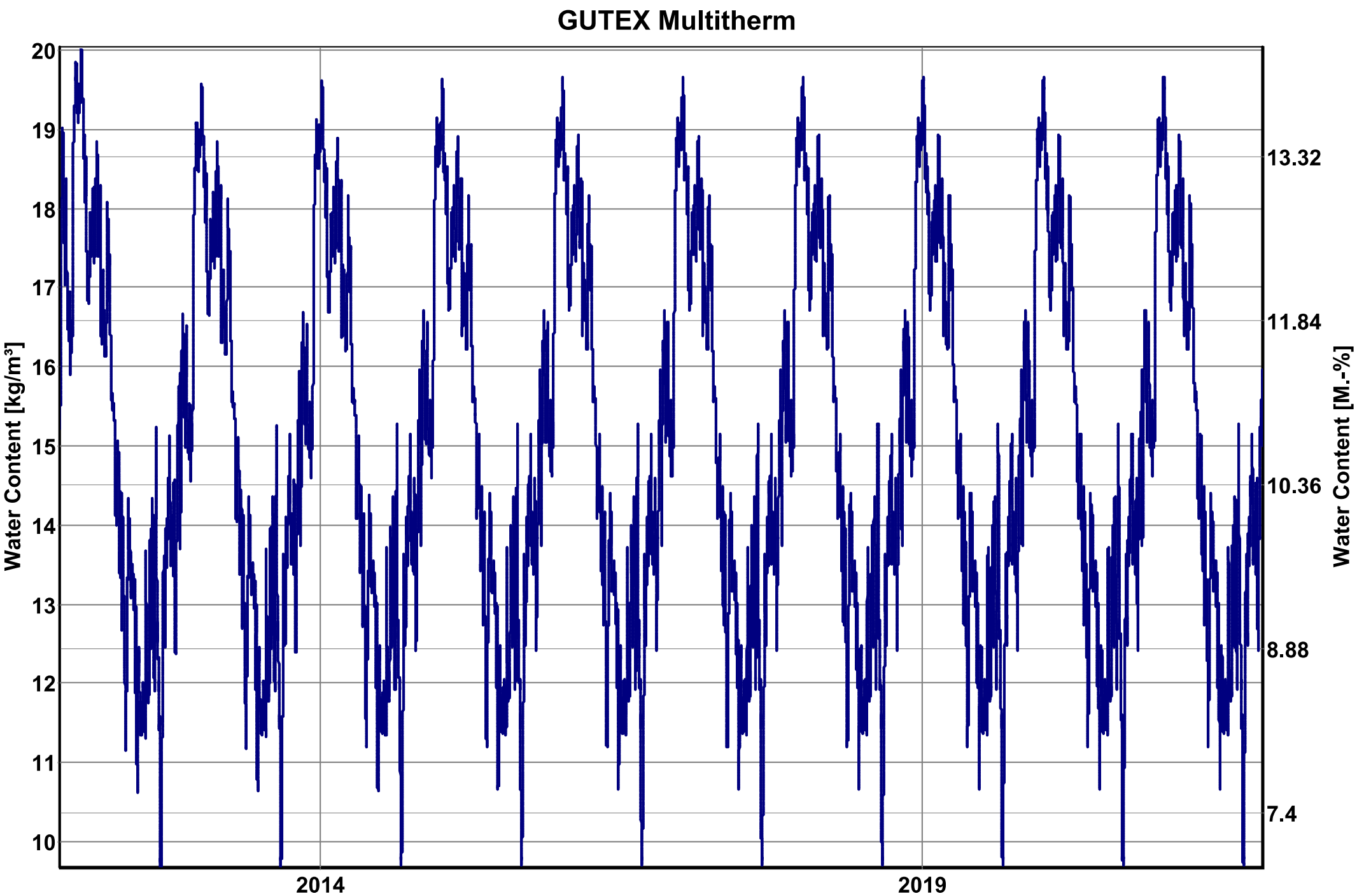


WUFI® Pro 5.1; Project: StirleyFarmWallWufiCalc231012.W5P; Stirley Farm Stone Wall,231012 / Case 1: Stone wall with internal Timberframe stud and vented cavity; Date: 26/10/2012 12:53:32

Air Layer 100 mm

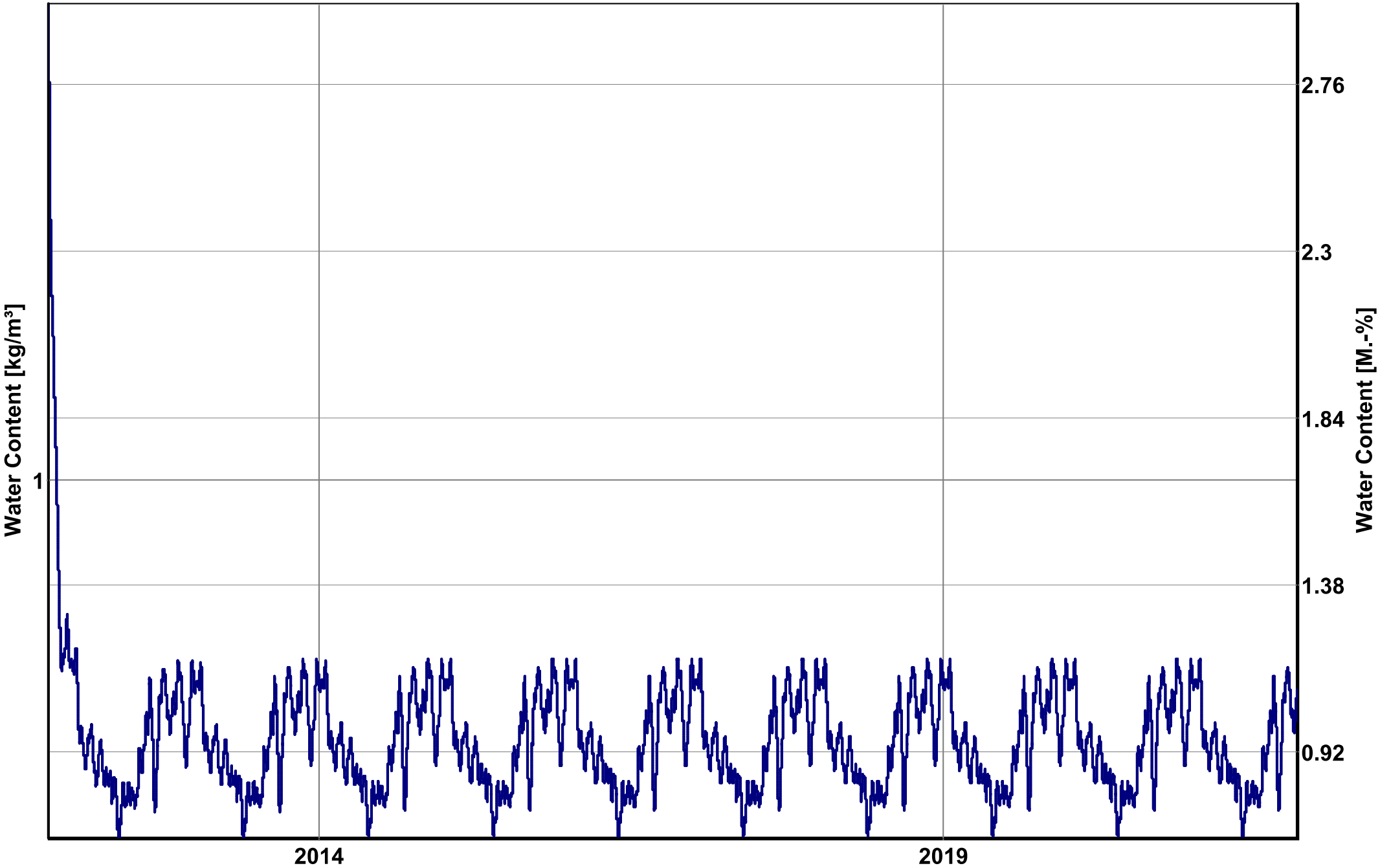


WUFI® Pro 5.1; Project: StirleyFarmWallWufiCalc231012.W5P; Stirley Farm Stone Wall,231012 / Case 1: Stone wall with internal Timberframe stud and vented cavity; Date: 26/10/2012 11:04:02

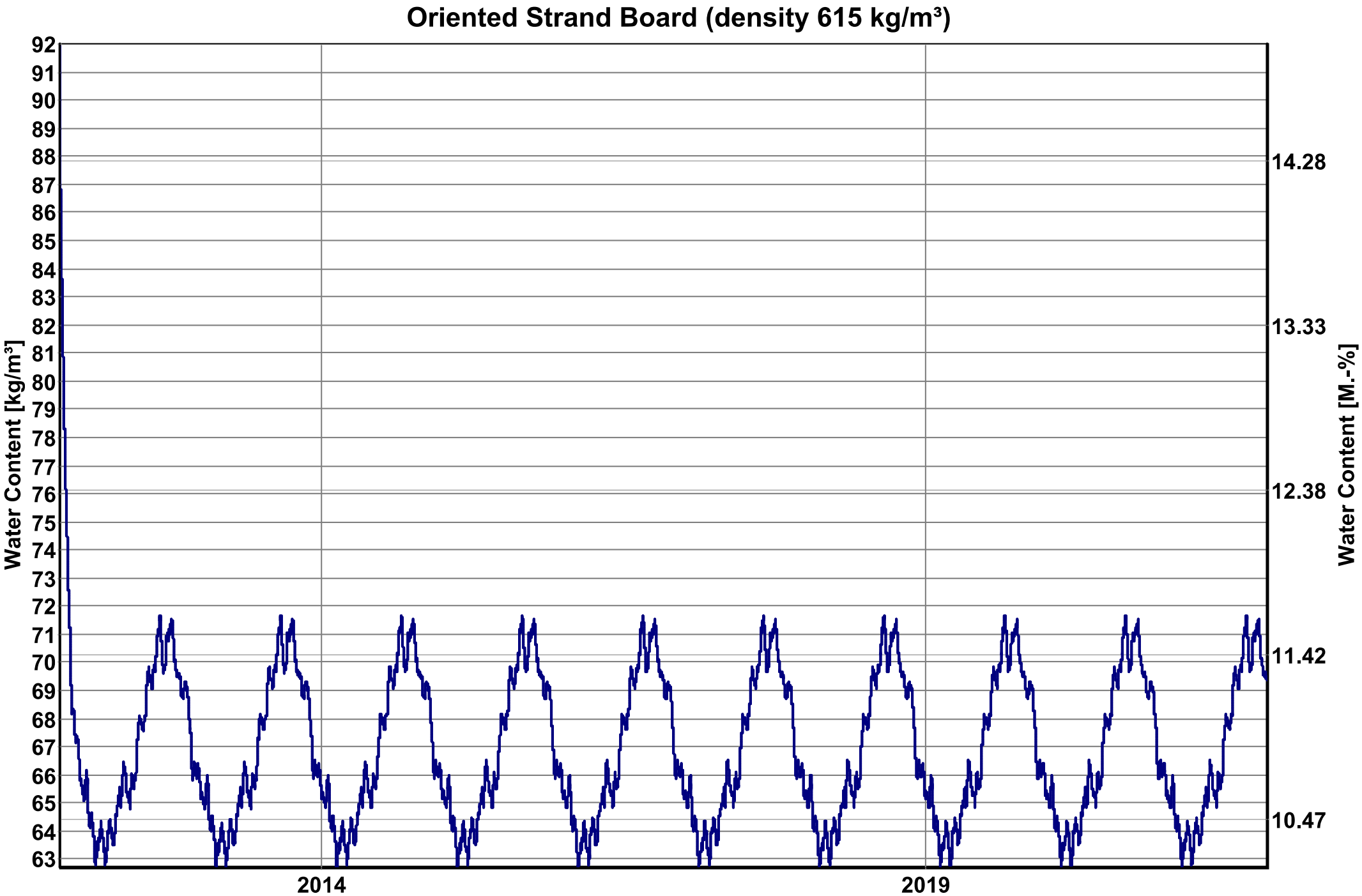


WUFI® Pro 5.1; Project: StirleyFarmWallWufiCalc231012.W5P; Stirley Farm Stone Wall,231012 / Case 1: Stone wall with internal Timberframe stud and vented cavity; Date: 26/10/2012 11:02:28

Mineral Wool (heat cond.: 0,04 W/mK)



WUFI® Pro 5.1; Project: StirleyFarmWallWufiCalc231012.W5P; Stirley Farm Stone Wall,231012 / Case 1: Stone wall with internal Timberframe stud and vented cavity; Date: 26/10/2012 11:03:05



WUFI® Pro 5.1; Project: StirleyFarmWallWufiCalc231012.W5P; Stirley Farm Stone Wall,231012 / Case 1: Stone wall with internal Timberframe stud and vented cavity; Date: 26/10/2012 11:03:23