EW volume comparison between MiTS 1 and MiTS 2

Earthwork · https://mes100.com/docs/ew-volume-comparison-between-mits-1-and-mits-2/

Objective: Comparison of Earthwork volume between MiTS 1 and MiTS 2

There are few parameters that we will keep constant to reduce the discrepancy between each project file. The parameters are listed as follow:

1. Using TIN as meshing method
2. Grid size
    - Angle: 0
    - Interval: 5m
    - Left offset: 2.5m
    - Right offset: 2.5m
3. End-Area
    - Interval: 5m

With slope

Swell/Shrink Factor: 1.00

You can refer to the MiTS 1 project file here.

You can refer to the MiTS 2 project file here.

Method	MiTS 1	MiTS 2	Discrepancy
DTM	476638.77	474631.90	0.42%
Grid	362866.72	476171.18	27.01%
End-Area	476771.49	474752.40	0.42%

Without slope

Swell/Shrink Factor: 1.00

You can refer to the MiTS 1 project file here.

You can refer to the MiTS 2 project file here.

Method	MiTS 1	MiTS 2	Discrepancy
DTM	358365.46	358366.66	0.00%
Grid	362866.72	360416.96	0.68%
End-Area	357810.16	357811.73	0.00%

With shrink/swell factor (with slope)

Swell/Shrink Factor: 0.70

You can refer to the MiTS 1 project file here.

You can refer to the MiTS 2 project file here.

Method	MiTS 1	MiTS 2	Discrepancy
DTM	273396.60	271994.63	0.51%
Grid	218282.41	274146.18	22.69%
End-Area	273547.74	272132.50	0.52%

Note: You can refer here to know the detailed earthwork computation for a project with shrink/swell factor.

Conclusion

In conclusion, for DEM and End-Area Method, the results obtained from MiTS 1 and MiTS 2 typically show a little discrepancy of less than 1%, which can be attributed to algorithmic improvements made in MiTS 2. Whereas for Grid Method, there are significant differences between the results obtained in MiTS 1 and MiTS 2. This happens because one limitation of the Grid Method used in MiTS 1 is that it

does not account for the effects of slope, resulting in identical EW volumes regardless of slope information. However, this limitation has been fixed and improved in MiTS 2.

Related



Ngu Soon Hui

I’m the Benevolent Dictator for Life for MiTS Software cum Editor of this website. Read more here.

You can also contact me at soonhui@mes100.com