

Wind on axis-symmetrical domes to half sphere (or more if non spherical)

Determines the wind actions to pass to FEM models for the joint coordinates

L := 50·m

f := 10·m

Arch := 1

1 for parabolic directrix
2 for Catenary directrix
3 for circular directrix

Skin := 1

1 for rough
2 for soft

$\alpha_w := 10\cdot\text{deg}$

Criteria := 1

1 for basic pressure taken from apex
2 for basic pressure taken from height of point

Case := 1

To determine p(z)
1 for NBE AE-88 at exposed site
2 for NBE AE-88 at site somewhat protected from the wind

α_w angle the wind forms with the horizontal plane

- if positive, blows downwards
- if negative, blows upwards
- +10 deg, 0 deg and -10 deg must be considered

N_{wedges} := 36

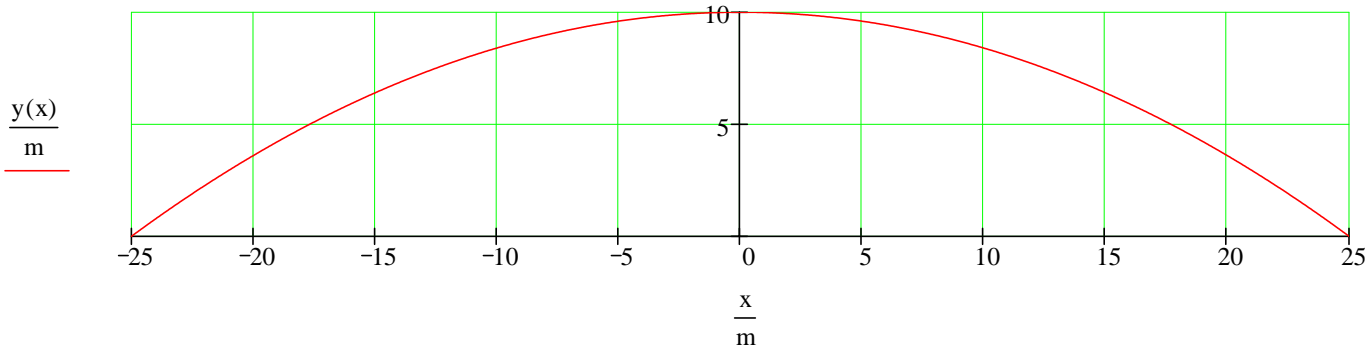
cover 360 deg

N_{slices} := 5

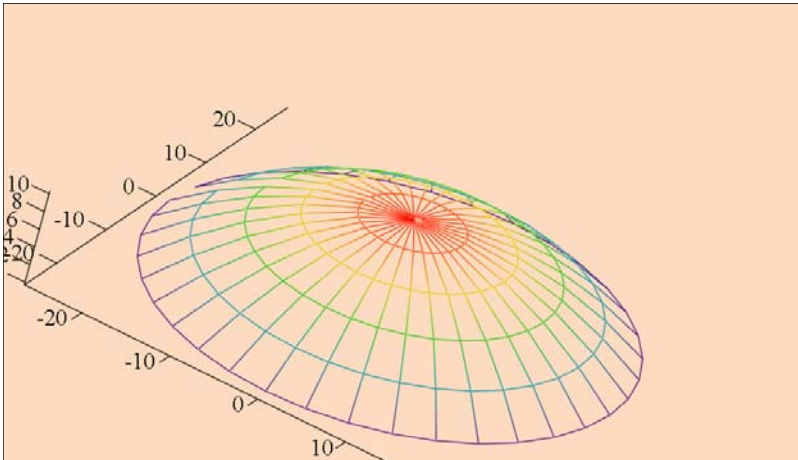
half meridian will be divide in such number of equal length -on the curve- segments

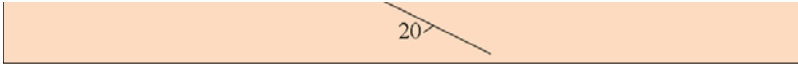
Chart the Directrix

Wind blows from negative x through origin to positive x



Representation of the parallels and meridians





(xx,yy,zz)



xyz =

	1	2	3
1	0	0	10
2	-5.463	0	9.522
3	-5.38	-0.949	9.522
4	-5.134	-1.869	9.522
5	-4.731	-2.732	9.522
6	-4.185	-3.512	9.522
7	-3.512	-4.185	9.522
8	-2.732	-4.731	9.522
9	-1.869	-5.134	9.522
10	-0.949	-5.38	9.522
11	0	-5.463	9.522
12	0.949	-5.38	9.522
13	1.869	-5.134	9.522
14	2.732	-4.731	9.522
15	3.512	-4.185	9.522
16	4.185	-3.512	9.522

m

FxFyFz =

	1	2	3
1	0	0	1.892
2	-0.072	0	0.411
3	-0.071	-0.012	0.411
4	-0.068	-0.025	0.412
5	-0.063	-0.036	0.414
6	-0.056	-0.047	0.418
7	-0.048	-0.057	0.423
8	-0.037	-0.065	0.428
9	-0.026	-0.071	0.43
10	-0.013	-0.073	0.425
11	0	-0.072	0.409
12	0.012	-0.066	0.381
13	0.021	-0.057	0.345
14	0.027	-0.047	0.308
15	0.031	-0.037	0.275
16	0.033	-0.028	0.247

ton

- use slide bars to see all results
- export through (right click floating menu) Select All-Copy Selection-Edit-Paste to Excel if necessary