

Sonic Anemometer Angles

Read This First

There is a row in the table for each sonic at each site. The first column is the site, the second is the nominal height of the sonic, and the third is the type of sonic. The first three columns, the ones in bold, should not change.

If a sonic is not actually at the nominal height, you can edit the actual height field for that sonic, but initially all the actual heights are filled in with the nominal height.

To record the horizontal orientation of a sonic, measure the bearing of the boom relative to magnetic north looking along the boom towards the tower. In the measurement columns on the right, record the measured bearing, who made it, and any other relevant notes, like how it was made. For example, 99 deg, gg, handheld compass, 12/15/2016. If there is more than one measurement for a sonic, then more than one measurement column will be filled in. Finally, derive the best approximation for the boom angle from all the measurements and enter it in the *Bearing* column. Derive the angle as an average, or just pick the most reliable measurement.

Usually all the sonic booms on a tower have the same bearing, in which case you can copy one measurement to all the heights at that site.

The sonic type should be enough to indicate how the sonic is mounted relative to the boom, as indicated in the table below. If a sonic is not mounted according to the conventions below, then the boom angle bearing in the table needs to be adjusted accordingly. For example, if a sonic is rotated 180 degrees from the conventional orientation, then add 180 degrees to the boom angle and note that in one of the the measurement columns.

Sonic Type	Mounting relative to boom
RMYoung	Black wiring box points towards tower in line with boom
Metek	Arrow on side points away from boom (confirmed by Dan in comments below)
Gill 3D	All the Gills were mounted by DTU and ARL, and we assume they were oriented to north, so the boom angles below are left empty , suppressing any correction. Entering zero would still apply the magnetic declination adjustment, so better to leave them blank.
CSAT3	White box above the boom, lettering upright
CSAT3A (EC150)	Mounting post inserts into end of boom, cable exits head beneath boom

This table is scraped by a script to extract all the angles and generate calibration files for NIDAS processing, so the layout should not change and the meaning of the columns should not change. Other than that, edit it like you would any other wiki page.

Sonic Angles Table

The boom angle is the bearing of the boom pointing away from the tower relative to magnetic north, in units of degrees. If you shoot the angle looking along the boom towards the tower (ie, so the tower is not obstructing the view of the boom), then add 180 degrees to get the boom angle expected in this table. Initially we just need rough estimates in this table.

rne01	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne01	10m	CSAT3	10				
rne02	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne02	10m	RMY81000	10				
rne02	20m	RMY81000	20				
rne03	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne03	10m	CSAT3A	10				
rne04	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne04	10m	RMY81000	10				
rne05	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne05	10m	RMY81000	10				
rne05	20m	RMY81000	20				
rne06	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne06	10m	CSAT3	10				
rne06	20m	CSAT3A	20				

rne07	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rne07	10m	CSAT3A	10				
rne07	20m	CSAT3	20				
rsw01	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw01	10m	METEK	10				
rsw01	20m	METEK	20				
rsw02	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw02	10m	RMY81000	10				
rsw02	20m	RMY81000	20				
rsw03	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw03	10m	Gill3D	10				
rsw03	20m	Gill3D	20				
rsw03	30m	Gill3D	30				
rsw03	40m	Gill3D	40				
rsw03	60m	Gill3D	60				
rsw04	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw04	10m	CSAT3A	10				
rsw05	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw05	10m	METEK	10				
rsw06	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw06	10m	Gill3D	10				
rsw06	20m	Gill3D	20				
rsw06	30m	Gill3D	30				
rsw06	40m	Gill3D	40				
rsw06	60m	Gill3D	60				
rsw07	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw07	10m	CSAT3	10				
rsw07	20m	CSAT3A	20				
rsw08	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
rsw08	10m	METEK	10				
rsw08	20m	METEK	20				
tnw01	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw01	2m	RMY81000	2				
tnw01	10m	RMY81000	10				
tnw01	20m	RMY81000	20				
tnw02	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw02	2m	RMY81000	2				
tnw02	10m	CSAT3A	10				
tnw02	20m	CSAT3	20				
tnw03	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw03	2m	METEK	2				
tnw03	10m	METEK	10				
tnw04	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw04	2m	RMY81000	2				
tnw04	4m	RMY81000	4				
tnw04	6m	RMY81000	6				
tnw04	8m	RMY81000	8				
tnw04	10m	RMY81000	10				

tnw04	12m	RMY81000	12				
tnw04	20m	RMY81000	20				
tnw05	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw05	2m	RMY81000	2				
tnw05	4m	RMY81000	4				
tnw05	6m	RMY81000	6				
tnw05	8m	RMY81000	8				
tnw05	10m	CSAT3A	10				
tnw05	12m	RMY81000	12				
tnw05	20m	CSAT3	20				
tnw06	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw06	2m	RMY81000	2				
tnw06	4m	RMY81000	4				
tnw06	6m	RMY81000	6				
tnw06	8m	RMY81000	8				
tnw06	10m	RMY81000	10				
tnw06	12m	RMY81000	12				
tnw06	20m	RMY81000	20				
tnw07	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw07	4m	RMY81000	4				
tnw07	6m	RMY81000	6				
tnw07	8m	RMY81000	8				
tnw07	10m	Gill3D	10				
tnw07	12m	RMY81000	12				
tnw07	20m	Gill3D	20				
tnw07	30m	Gill3D	30				
tnw07	40m	Gill3D	40				
tnw07	60m	Gill3D	60				
tnw08	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw08	2m	RMY81000	2				
tnw08	10m	RMY81000	10				
tnw08	20m	RMY81000	20				
tnw09	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw09	2m	RMY81000	2				
tnw09	10m	CSAT3	10				
tnw10	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw10	10m	Gill3D	10				
tnw10	20m	Gill3D	20				
tnw10	30m	Gill3D	30				
tnw10	40m	Gill3D	40				
tnw10	60m	Gill3D	60				
tnw11	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tnw11	2m	RMY81000	2				
tnw11	10m	RMY81000	10				
tnw11	20m	RMY81000	20				
tse01	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse01	10m	CSAT3A	10				
tse01	30m	CSAT3	30				
tse02	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse02	10m	CSAT3A	10				

tse02	30m	CSAT3	30				
tse04	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse04	10m	Gill3D	10				
tse04	20m	Gill3D	20				
tse04	30m	Gill3D	30				
tse04	40m	Gill3D	40				
tse04	60m	Gill3D	60				
tse04	80m	Gill3D	80				
tse04	80m	Gill3D	80				
tse04	100m	Gill3D	100				
tse05	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse05	10m	CSAT3A	10				
tse05	20m	CSAT3	20				
tse06	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse06	10m	Gill3D	10				
tse06	20m	Gill3D	20				
tse06	30m	Gill3D	30				
tse06	40m	Gill3D	40				
tse06	60m	Gill3D	60				
tse07	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse07	10m	CSAT3	10				
tse07	20m	CSAT3	20				
tse08	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse08	10m	METEK	10				
tse08	20m	METEK	20				
tse09	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse09	10m	Gill3D	10				
tse09	20m	Gill3D	20				
tse09	30m	Gill3D	30				
tse09	40m	Gill3D	40				
tse09	60m	Gill3D	60				
tse09	80m	Gill3D	80				
tse09	100m	Gill3D	100				
tse10	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse10	10m	METEK	10				
tse10	30m	METEK	30				
tse11	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse11	10m	Gill3D	10				
tse11	20m	Gill3D	20				
tse11	30m	Gill3D	30				
tse11	40m	Gill3D	40				
tse11	60m	Gill3D	60				
tse12	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse12	10m	CSAT3	10				
tse12	20m	CSAT3	20				
tse13	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse13	10m	Gill3D	10				
tse13	20m	Gill3D	20				
tse13	30m	Gill3D	30				
tse13	40m	Gill3D	40				

tse13	60m	Gill3D	60				
tse13	80m	Gill3D	80				
tse13	100m	Gill3D	100				
tse14	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse14	10m	CSAT3	10				
tse14	20m	CSAT3	20				
tse15	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
tse15	10m	METEK	10				
tse15	20m	METEK	20				
v01	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v01	2m	CSAT3	2				
v01	10m	CSAT3	10				
v02	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v02	2m	METEK	2				
v02	10m	METEK	10				
v02	20m	METEK	20				
v03	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v03	2m	CSAT3A	2				
v03	10m	CSAT3	10				
v04	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v04	2m	CSAT3	2				
v04	10m	CSAT3A	10				
v05	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v05	2m	METEK	2				
v05	10m	METEK	10				
v05	20m	METEK	20				
v06	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v06	2m	CSAT3	2				
v06	10m	CSAT3	10				
v06	20m	CSAT3A	20				
v07	Height	Sonic	Actual (m)	Boom angle (degrees)	Measurement One	Measurement Two	Measurement Three
v07	2m	CSAT3	2				
v07	4m	RMV81000	4				
v07	6m	RMV81000	6				
v07	8m	RMV81000	8				
v07	10m	CSAT3	10				
v07	12m	RMV81000	12				
v07	20m	CSAT3A	20				