SIGHT REDUCTION	**with**	**hav – Doniol method**	**Hc:**
L: latitude	**set:**	**n = hav (L – d)**	**hav (s2s) = n + (1- q)* hav(LHA)**
d: declination		**p = hav (L + d)**	**Hc = 90° – s2s**
LHA: Loc.Hour Angle		**q = p + n**	***s2s: ship-to-star distance***

Example:	**n = hav [10°- (- 40)°]**	**= .1786**	**hav (s2s) = .1786 + .7544 * .2500**	
L = 10° (North)	**p = hav [10°+(- 40)°]**	**= .0670**	**= .3672**	*so, from table:*
d = - 40° (South)	**Q**	**= .2456**	**s2s = 74°36**	
LHA = 60°	**hav(LHA)**	**= .2500**	**Hc = 15°24**	

set: PD = 90° – d	**Azimuth Z:**
N = hav (L – Hc)	**hav(Z) = [hav (PD) - N] / (1- Q)**
P = hav (L + Hc)	**Q ~ 0 : = [hav (PD) - N] * (1+Q)**
Q = P+N	

PD = 90° - (- 40)°	**= 130° !!**	**hav (PD) = .8214**	
N = hav(10°-15 ° 24)	**= .0022**	**hav (Z) = (.8214 - .0022) /.9495**	
P = hav(10°+15 °24)	**= .0483**	**= .8628**	*so, from table :*
Q	**= .0505**	**Z = 136°31; adjust: 180 - Z = 43°29**	

hav – DONIOL.xls/pdf

H.Dx ***Thanks to G. Rudzinsky, L. Bergman***