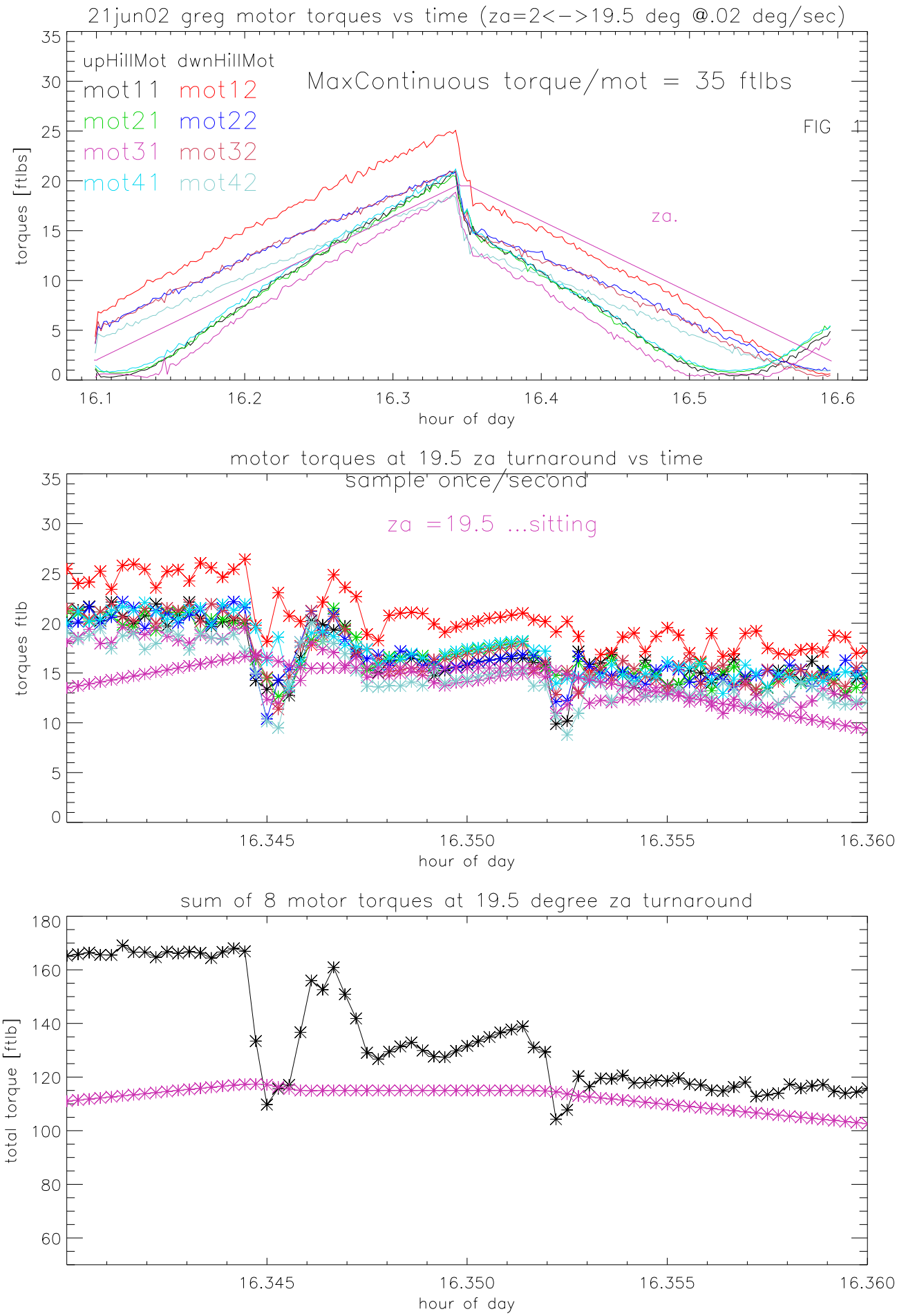

21jun02 greg motor torques vs time (za=2<->19.5 deg @.02 deg/sec)
upHillMot dwnHillMot
mot11 mot12
mot21 mot22
mot31 mot32
mot41 mot42
MaxContinuous torque/mot = 35 ftlbs
FIG 1
za.
torques [ftlbs]
hour of day
motor torques at 19.5 za turnaround vs time
sample once/second
za =19.5 ...sitting
torques ftlb
hour of day
sum of 8 motor torques at 19.5 degree za turnaround
total torque [ftlb]
hour of day

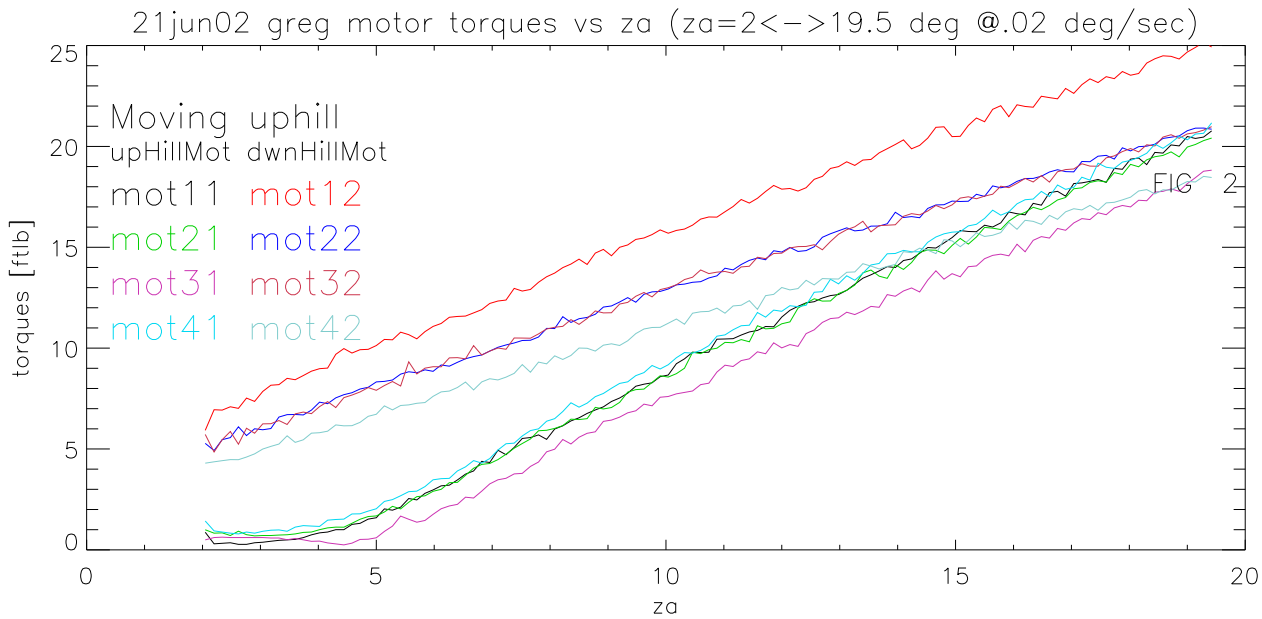
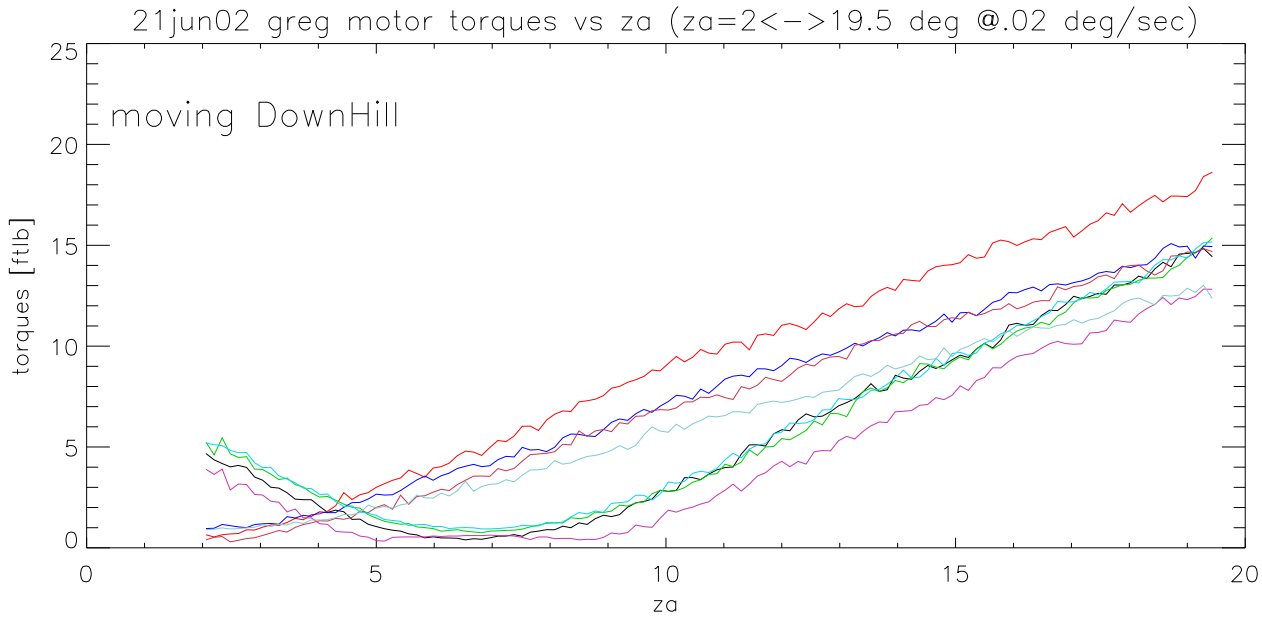
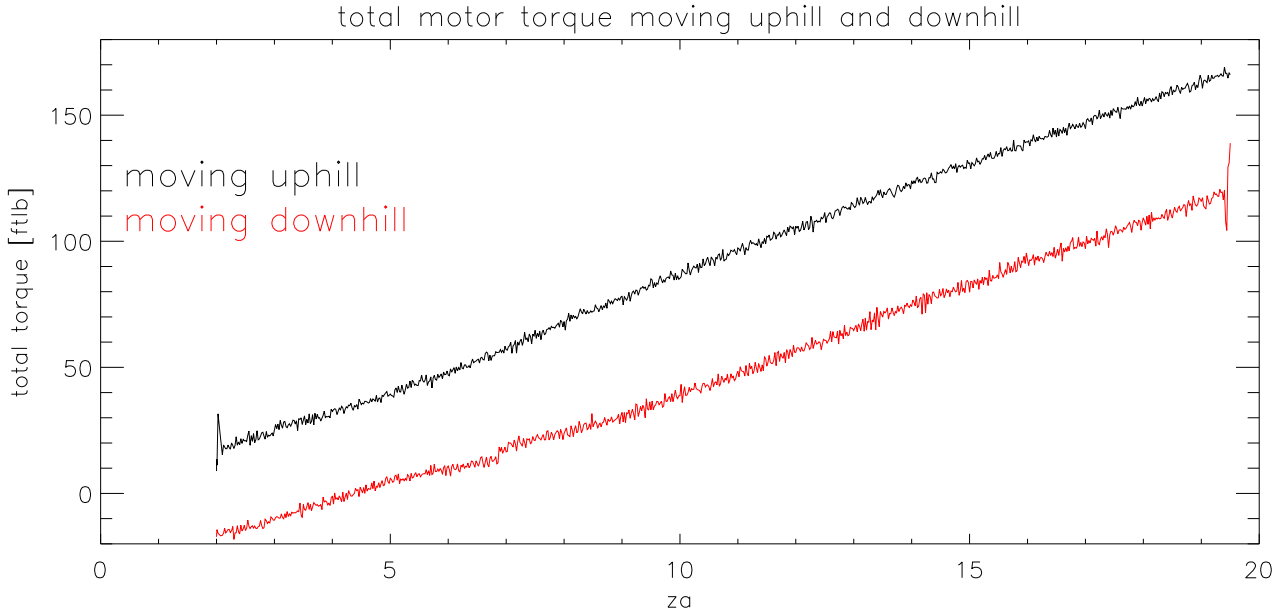
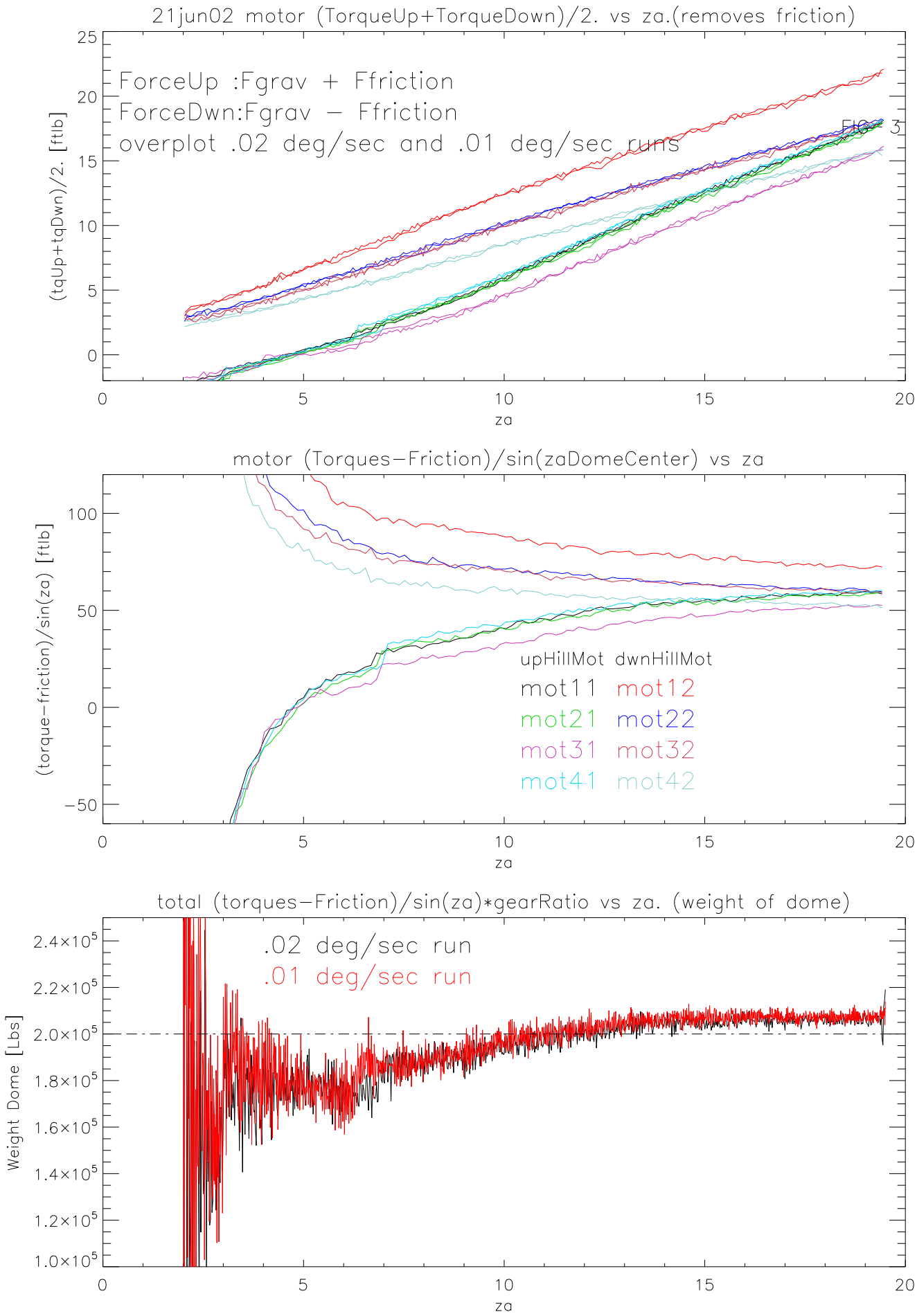
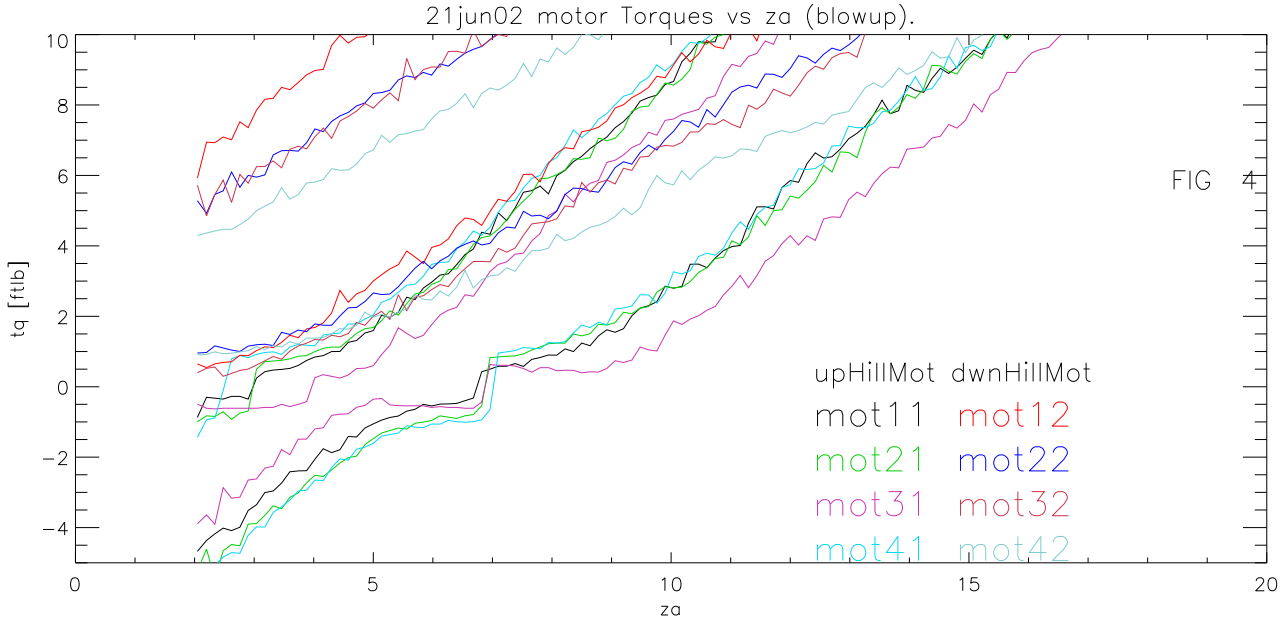

21jun02 greg motor torques vs za (za=2<->19.5 deg @.02 deg/sec)
Moving uphill
upHillMot dwnHillMot
mot11 mot12
mot21 mot22
mot31 mot32
mot41 mot42
torques [ftlb]
za

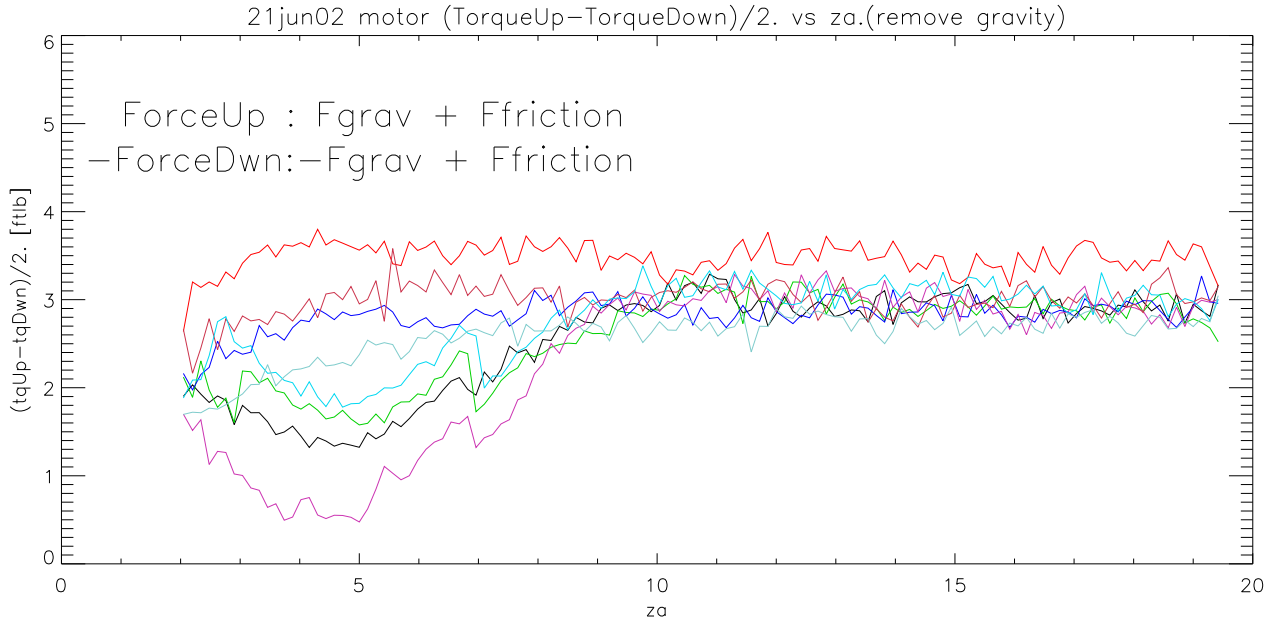
FIG 2

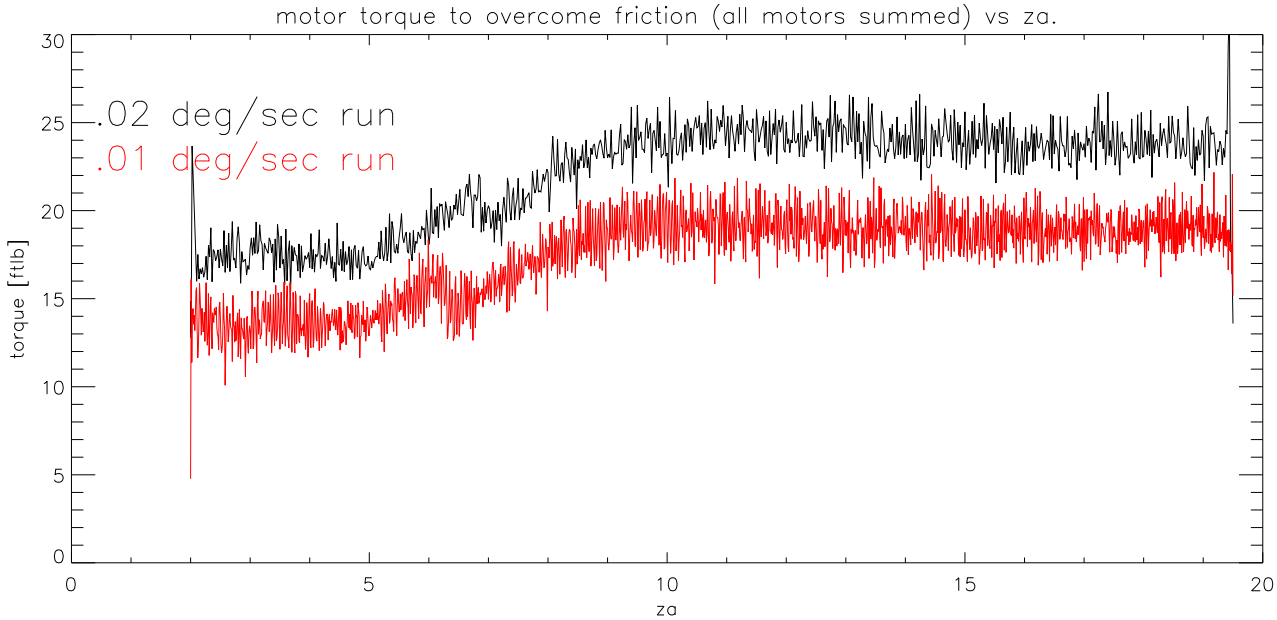

21jun02 greg motor torques vs za (za=2<->19.5 deg @.02 deg/sec)
moving DownHill
torques [ftlb]
za


total motor torque moving uphill and downhill
moving uphill
moving downhill
total torque [ftlb]
za


21jun02 motor (TorqueUp+TorqueDown)/2. vs za.(removes friction)
ForceUp :Fgrav + Ffriction
ForceDwn:Fgrav − Ffriction
overplot .02 deg/sec and .01 deg/sec runs
FIG. 3
(tqUp+tqDwn)/2. [ftlb]
za
motor (Torques−Friction)/sin(zaDomeCenter) vs za
(torque−friction)/sin(za) [ftlb]
upHillMot dwnHillMot
mot11 mot12
mot21 mot22
mot31 mot32
mot41 mot42
za
total (torques−Friction)/sin(za)*gearRatio vs za. (weight of dome)
.02 deg/sec run
.01 deg/sec run
Weight Dome [Lbs]
za


21jun02 motor Torques vs za (blowup).
FIG 4
upHillMot dwnHillMot
mot11 mot12
mot21 mot22
mot31 mot32
mot41 mot42
tq [ftlb]
za


21jun02 motor (TorqueUp−TorqueDown)/2. vs za.(remove gravity)
ForceUp : Fgrav + Ffriction
−ForceDwn:−Fgrav + Ffriction
(tqUp−tqDwn)/2. [ftlb]
za


motor torque to overcome friction (all motors summed) vs za.
.02 deg/sec run
.01 deg/sec run
torque [ftlb]
za