#

# MASK\_COORDS: Convert (x,y) on sky to xmm,ymm on slitmask

# NB: Requires instrument params, INCLUDING THE APPROP. TEL FOC LENGTH

# Assumes that the XARCS,YARCS of the slit ends are the tan projections

#

procedure mask\_coords (sdat, nslit)

pointer sdat

int nslit

double xfp, yfp # x,y points in FP (tan projection)

double xsm, ysm # x,y points on the mask

double pa

int i

double xoff, yoff # offset, telaxis to origin of slitmask

double asec\_rad

real sina, cosa

begin

asec\_rad = 206264.8D0

# offset from telescope axis to slitmask origin, IN SLITMASK COORDS

yoff = ZPT\_YM \* (1. - cos (DEGTORAD(M\_ANGLE)))

yoff = 0. # XXX check! Am not sure where the above comes from

xoff = 0.

do i = 0, nslit-1 {

# XXX For now, carry through the RELPA thing; in end, must be specified!

if (RELPA(sdat,i) != INDEF) {

cosa = cos (RELPA(sdat,i))

sina = sin (RELPA(sdat,i))

} else {

cosa = 1.

sina = 0.

}

# cosa = cos (RELPA(sdat,i)) # XXX

# sina = sin (RELPA(sdat,i)) # XXX

# This is a recalculation ... prob not needed

X1(sdat,i) = XARCS(sdat,i) - LEN1(sdat,i) \* cosa \* FLIP

Y1(sdat,i) = YARCS(sdat,i) - LEN1(sdat,i) \* sina

X2(sdat,i) = XARCS(sdat,i) + LEN2(sdat,i) \* cosa \* FLIP

Y2(sdat,i) = YARCS(sdat,i) + LEN2(sdat,i) \* sina

# XXX cuidado! I am not sure that the tan-projection of the rel PA is the

# same as the rel PA -- MUST CHECK! (This code comes from gen\_slits)

# The focal plane coordinates are now simply a tan projection of (x,y) arcsec

# Need to verify that these are truly symmetric:

# xfp = FL\_TEL \* tan (DEGTORAD(X1(sdat,i)/3600.))

# yfp = FL\_TEL \* tan (DEGTORAD(Y1(sdat,i)/3600.)) / cos (DEGTORAD(X1(sdat,i)/3600.))

# X1,Y1 are now tan projections already!

xfp = FL\_TEL \* X1(sdat,i) / asec\_rad

yfp = FL\_TEL \* (Y1(sdat,i) - 0.5\*SLWID(sdat,i)) / asec\_rad

pa = 0.

call gnom\_to\_dproj (xfp, yfp, xfp, yfp) # (allowed)

call proj\_to\_mask (xfp, yfp, pa, xsm, ysm, pa)

XMM1(sdat,i) = xsm + xoff

YMM1(sdat,i) = ysm + yoff

xfp = FL\_TEL \* X2(sdat,i) / asec\_rad

yfp = FL\_TEL \* (Y2(sdat,i) - 0.5\*SLWID(sdat,i)) / asec\_rad

pa = 0.

call gnom\_to\_dproj (xfp, yfp, xfp, yfp) # (allowed)

call proj\_to\_mask (xfp, yfp, pa, xsm, ysm, pa)

XMM2(sdat,i) = xsm + xoff

YMM2(sdat,i) = ysm + yoff

xfp = FL\_TEL \* X2(sdat,i) / asec\_rad

yfp = FL\_TEL \* (Y2(sdat,i) + 0.5\*SLWID(sdat,i)) / asec\_rad

pa = 0.

call gnom\_to\_dproj (xfp, yfp, xfp, yfp) # (allowed)

call proj\_to\_mask (xfp, yfp, pa, xsm, ysm, pa)

XMM3(sdat,i) = xsm + xoff

YMM3(sdat,i) = ysm + yoff

xfp = FL\_TEL \* X1(sdat,i) / asec\_rad

yfp = FL\_TEL \* (Y1(sdat,i) + 0.5\*SLWID(sdat,i)) / asec\_rad

pa = 0.

call gnom\_to\_dproj (xfp, yfp, xfp, yfp) # (allowed)

call proj\_to\_mask (xfp, yfp, pa, xsm, ysm, pa)

XMM4(sdat,i) = xsm + xoff

YMM4(sdat,i) = ysm + yoff

}

call metal\_check (sdat, nslit)

## Perhaps we want to force YMM4-YMM1 == YMM3-YMM2; for non-tilted slits,

## this should produce a cleaner edge; otherwise, jumps can occur.

end