

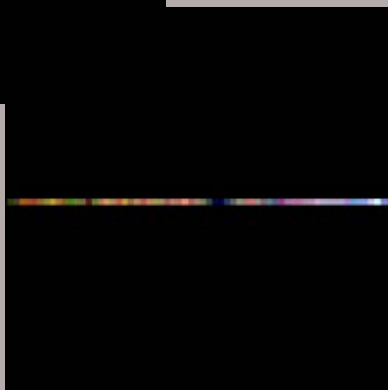


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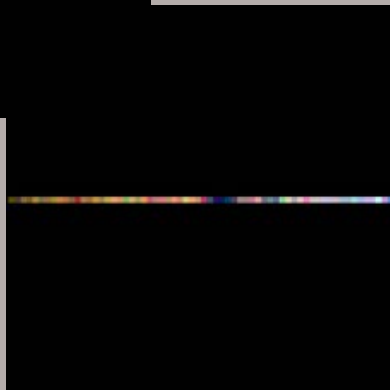
Set 3: Example 2-Assemble and Map Project single-line VIMS cub



Line 1=1540485616_1



Line 2=1540485617_1



Line 3=1540485618_1

...Line 582=1540486209_1



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Set 3: Example 2-Assemble and Map Project single-line VIMS cub

- ❑ Level 1 Processing
 - Ingestion
 - SPICE
 - Radiometric Calibration

Command Line Script:

➤ cat level1_example.scr

```
vims2isis -batchlist=input_example.lis from=V\$.QUB vis=V\$.vis.cub ir=V\$.ir.cub
```

```
spiceinit -batchlist=input_example.lis from=V\$.ir.cub
```

```
vimscal -batchlist=input_example.lis from=V\$.ir.cub to=C\$.ir.cub units=IOF irorigdark=false
```

➤ cat input_example.lis

```
1540485616_1.ir  
1540485617_1.ir  
1540485618_1.ir  
1540485619_1.ir  
1540485620_1.ir  
1540485621_1.ir ...
```



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Set 3: Example 2-Assemble and Map Project single-line VIMS cub

❑ Assemble Cube

- Generate geometric planes (Latitude/Longitude) for every pixel
- Determine the finished size of the assembled cube
- “Hand” mosaic each data, latitude & longitude line in sequential order

Awk:

➤ cat nocam.awk

```
ast{904}> head -20 /work/projects/cassini/VIMS/Titan_I3_Level11/S25/C1540485616_1.ir.cub
Object = IsisCube
  Object = Core
    StartByte = 65537
    Format = Tile
    TileSamples = 128
    TileLines = 128
  Group = Dimensions
    Samples = 64
    Lines = 1
    Bands = 256
  End_Group
```

```
BEGIN {x=1}
{{
  {print "phocube from=\"$1\".cub+1 to=\"$1\"_pho.cub phase=false emission=false incidence=false"}
  if (x == 1) {
    {printf "handmos from=\"$1\"_pho.cub mosaic=S25_T20_nocam_pho.cub create=yes outsample=1 outline=%s nlines=582 nsamples=64 nbands=2\n",x}
    {printf "handmos from=\"$1\".cub mosaic=S25_T20_nocam_level1.cub create=yes outsample=1 outline=%s nlines=582 nsamples=64 nbands=256\n\n",x}
  }
  else {
    {printf "handmos from=\"$1\"_pho.cub mosaic=S25_T20_nocam_pho.cub create=no outsample=1 outline=%s\n",x}
    {printf "handmos from=\"$1\".cub mosaic=S25_T20_nocam_level1.cub create=no outsample=1 outline=%s\n\n",x}
  }
  x++}
END {}
```



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Set 3: Example 2-Assemble and Map Project single-line VIMS cub

Create a command-line script using the 'awk' file

➤ `awk -f nocam.awk S25_T20.lis > nocam.scr`

Change the file type to execute

➤ `chmod 755 nocam.scr`

Run the script

➤ `./nocam.scr`

S25_T20.lis

```
C1540485616_1.ir  
C1540485617_1.ir  
C1540485618_1.ir  
C1540485619_1.ir  
C1540485620_1.ir  
C1540485621_1.ir  
...
```

```
phocube from=C1540485616_1.ir.cub+1 to=C1540485616_1.ir_phocube phase=false emission=false incidence=false  
handmos from=C1540485616_1.ir_phocube mosaic=S25_T20_nocam_phocube create=yes outsample=1 outline=1 nlines=582 nsamples=64 nbands=2  
handmos from=C1540485616_1.ir.cub mosaic=S25_T20_nocam_level1.cub create=yes outsample=1 outline=1 nlines=582 nsamples=64 nbands=256
```

```
phocube from=C1540485617_1.ir.cub+1 to=C1540485617_1.ir_phocube phase=false emission=false incidence=false  
handmos from=C1540485617_1.ir_phocube mosaic=S25_T20_nocam_phocube create=no outsample=1 outline=2  
handmos from=C1540485617_1.ir.cub mosaic=S25_T20_nocam_level1.cub create=no outsample=1 outline=2 ...
```

...

```
phocube from=C1540486209_1.ir.cub+1 to=C1540486209_1.ir_phocube phase=false emission=false incidence=false  
handmos from=C1540486209_1.ir_phocube mosaic=S25_T20_nocam_phocube create=no outsample=1 outline=582  
handmos from=C1540486209_1.ir.cub mosaic=S25_T20_nocam_level1.cub create=no outsample=1 outline=582
```



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Set 3: Example 2-Assemble and Map Project single-line VIMS cub

“Work arounds”

- `editlab from=S25_T20_nocam_level1.cub options=delg grpname=Instrument`
- `editlab from=S25_T20_nocam_pho.cub options=delg grpname=Instrument`
- `editlab from=S25_T20_nocam_level1.cub options=addg grpname=Instrument`
- `editlab from=S25_T20_nocam_level1.cub options=addkey keyword=TargetName value=TITAN grpname=Instrument`

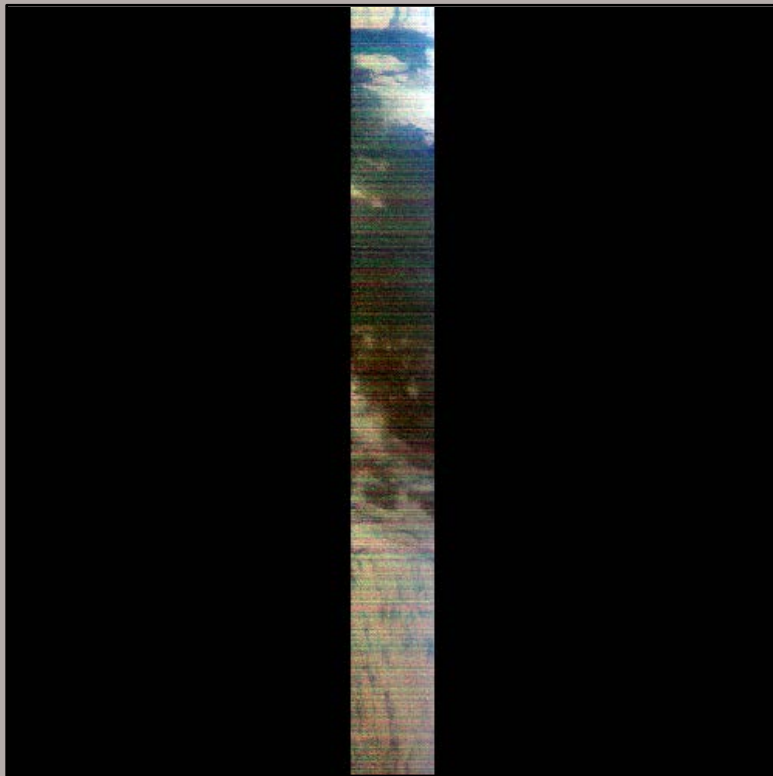
Remove the horizontal stripes using lowpass/highpass filter process

- `dstripe from=S25_T20_nocam_level1.cub to=S25_T20_dstr.cub mode=horizontal hlnl=1 hlns=65 hhns=1 hhn1=7`

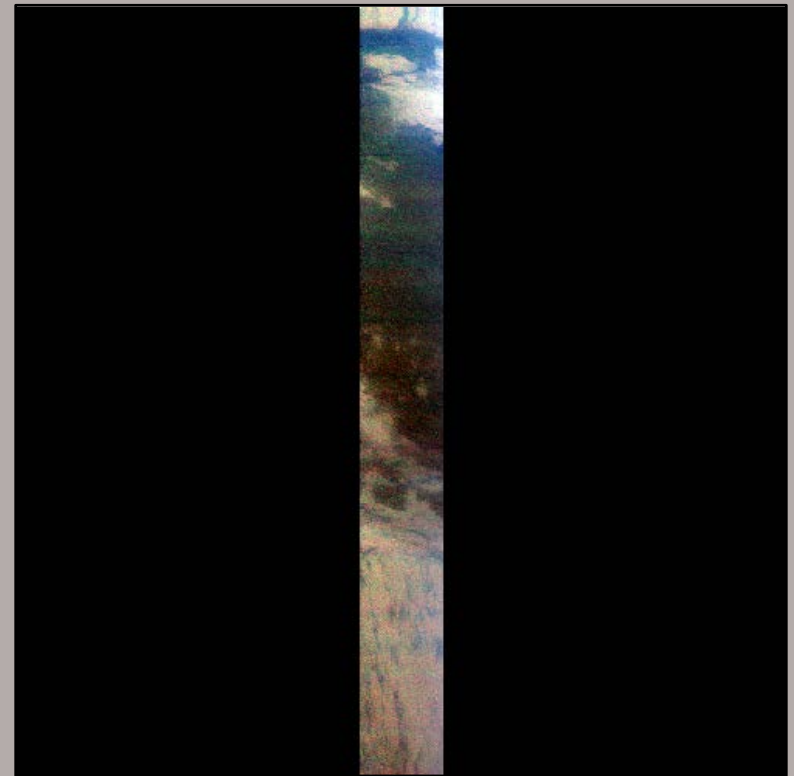


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Assembled Cube: before dstripe



Assembled Cube: after dstripe





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Set 3: Example 2-Assemble and Map Project single-line VIMS cub

❑ Details for a Map Template

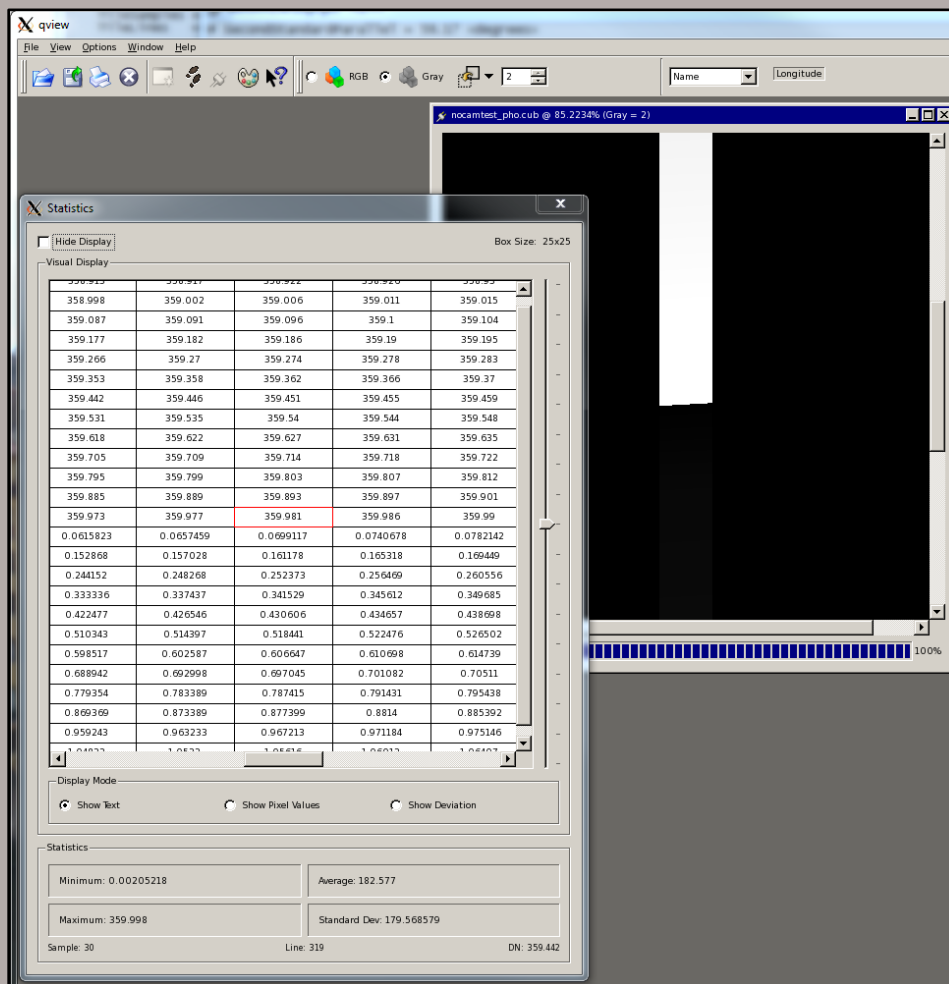
Determine Latitude Range

➤ stats from=S25_T20_nocam_pho.cub+1

Group = Results	
From	= S25_T20_nocam_pho.cub
Band	= 1
Average	= -15.592405465249
StandardDeviation	= 6.4847842536613
Variance	= 42.052426816533
Median	= -16.276006504898
Mode	= -22.751634364842
Skew	= 0.31624847315279
Minimum	= -25.218347549438
Maximum	= -3.1221134662628

Determine Longitude Range

- Display 25_T20_nocam_pho.cub+2
- Longitude crosses the 0/360 boundary
- Estimated Longitude Range = -25 to 25





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Set 3: Example 2-Assemble and Map Project single-line VIMS cub

❑ Generate a Map Template

- `maptemplate map=equi.map clat=0.0 clon=0.0 minlat=-25.5
maxlat=-3.0 minlon=-25 maxlon=25 londom=180
projection=EQUIRECTANGULAR targopt=user
targetname=Titan rngopt=user`

Project using the Map Template, Latitude and Longitude Planes

- `nocam2map from=S25_T20_dstr.cub
latcub=S25_T20_nocam_pho.cub+1
loncub=S25_T20_nocam_pho.cub+2
map=equi.map pixres=compute defaultrange=map
to=S25_T20_eq.cub`
- `qview S25_T20_eq.cub [band 71=red; band 44=green; band25=blue]`



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