**File N20200216A0230b.fits**

SIMPLE = T / file does conform to FITS standard

BITPIX = 16 / number of bits per data pixel

NAXIS = 3 / number of data axes

NAXIS1 = 512 / length of data axis 1

NAXIS2 = 512 / length of data axis 2

NAXIS3 = 320 / length of data axis 3

EXTEND = T / FITS dataset may contain extensions

COMMENT FITS (Flexible Image Transport System) format is defined in 'Astronomy

COMMENT and Astrophysics', volume 376, page 359; bibcode: 2001A&A...376..359H

BZERO = 32768 / offset data range to that of unsigned short

BSCALE = 1 / default scaling factor

CREATOR = 'Linux ANDOR CCD control V2' / Speckle Data-taking program

MJD-OBS = 58895.274340 / MJD at start of obs

JD = 2458895.77434 / Julian Date at start of obs

HDR\_REV = '4.00 10-Feb-2020q' / Header-Rev

UTC = '06:35:03.0' / UTC time at end of observation

LAST = '05:56:05.0' / LSTHDR local sidereal time

EPOCH = 2000.000000 / EPOCH of telescope coords

TARGRA = 35.035958 / Telescope target RA

TARGDEC = 21.698831 / Telescope target DEC

RA = '02:20:08.597' / Telescope RA

DEC = '+21:41:55.72' / Telescope DEC

RAOFFST = 0.000000 / Telescope RA offset

DECOFFST= 0.000000 / Telescope DEC offset

ZD = 49.937900 / zenith distance

AIRMASS = 1.552000 / airmass at start of exposure

FOCUS = '-0.120 ' / Telescope focus (microns)

OBJECT = 'ZTFJ0220+2141' / Object name

PA = 0.000000 / Instrument position angle

IAA = 0.000000 / Instrument Alignment angle

CRPA = 98.210000 / Current Cass Rotator Position Angle

GUIDING = 'On ' / Guide state

OBSERVAT= 'Gemini-North' / Originating Observatory

RELEASE = '2020-08-20' / End of proprietary period YYYY-MM-DD

INSTRUME= 'Alopeke ' / Instrument name

DATE-OBS= '2020-02-16' / Date of start of observation in UTC

TIMEOBS = '05:28:30' / from speckle.scope.timeobs

OBSTYPE = 'Object ' / Type of picture (object, dark, etc.)

TELESCOP= 'Gemini-North' / Specific system

RECID = '2020-02-16\_Gemini-North"' / archive ID for observation

ACT = 3.001196 / Accumulation cycle time

EXPTIME = 3.000020 / Frame Exposure time in seconds

OBSTIME = 1581833942.5149 / UTC at start of observation

EXPENDTM= 1581834903.2489 / UTC at end of observation

HEAD = 'Andor iXon Emccd' / Head model

ACQMODE = 'Kinetics mode' / Acquisition mode

KCT = 3.001196 / Kinetic cycle time

KINMODE = '1 ' / Kinetic Mode

NUMEXP = '1 ' / from speckle.scope.numexp

READMODE= 'Image ' / Readout mode

IMGRECT = '1,1024,1,1024' / Image format

EMCCD = 'On ' / EMCCD mode

FRAMEXFR= 'On ' / Frame Transfer mode

BLCLAMP = 'On ' / Bias Clamp

HBIN = 1 / Horizontal binning

VBIN = 1 / Vertical binning

SUBRECT = '280,791,240,751' / Subimage format

EXPOSURE= 960.006400 / Total Exposure Time

EMGAIN = 1000.000000 / EM Real Gain

VSSPEED = 1.130000 / Vertical Speed (usec)

HSSPEED = 1.000000 / Horizontal Speed (MHz)

OUTPTAMP= 'Electron Multiplying' / Output Amplifier

PREAMP = 2 / Pre Amplifier Gain

SERNO = 'X-10405 ' / Serial Number

UNSTTEMP= -60.000000 / Unstabilized Temperature

ACCUM = 1 / Accumulations per frame

NUMKIN = 320 / Number of kinetic frames

FILTER = 'Blue-g ' / Filter name

FLDZABER= 'wide ' / Field zaber position

INPZABER= 'wide ' / Input zaber position

CCDTEMP = -59.779999 / CCD temperature

RAWIQ = '0 ' / Image quality

RAWCC = '0 ' / Cloud cover

RAWWV = '0 ' / Water vapour

RAWBG = '0 ' / Background

HUMIDITY= '14.9 ' / from tcs.weather.humidity

OBSID = 'GN-2020A-FT-202' / Observation-ID

GEMPRGID= 'GN-2020A-FT-202' / Observation-ID

SPKLESEQ= 25 / SPECKLENFO-sequence

SPKLEDAT= 'Feb 15 20:35:03' / SPECKLENFO-timestamp

CRVAL1 = 21.698611 / Declination of reference pixel [deg]

CRVAL2 = 35.033333 / RA of reference pixel [deg]

CTYPE1 = 'DEC--TAN' / Coordinate type

CTYPE2 = 'RA--TAN ' / Coordinate type

CRPIX1 = 256 / Coordinate reference pixel in X

CRPIX2 = 256 / Coordinate reference pixel in Y

CDELT1 = 0.000000000000 / Rotation angle

CDELT2 = -0.000020138889 / Coordinate pixel scale in Y

CD1\_1 = 0.000020138889

CD1\_2 = 0.000000000000

CD2\_1 = 0.000000000000

CD2\_2 = -0.000020138889

WCSNAME = 'FK5 ' / World coordinate system type

RADECSYS= 'FK5 ' / Default coordinate system type

END

**File N20200217A0319b.fits**

SIMPLE = T / file does conform to FITS standard

BITPIX = 16 / number of bits per data pixel

NAXIS = 3 / number of data axes

NAXIS1 = 512 / length of data axis 1

NAXIS2 = 512 / length of data axis 2

NAXIS3 = 320 / length of data axis 3

EXTEND = T / FITS dataset may contain extensions

COMMENT FITS (Flexible Image Transport System) format is defined in 'Astronomy

COMMENT and Astrophysics', volume 376, page 359; bibcode: 2001A&A...376..359H

BZERO = 32768 / offset data range to that of unsigned short

BSCALE = 1 / default scaling factor

CREATOR = 'Linux ANDOR CCD control V2' / Speckle Data-taking program

MJD-OBS = 58896.277222 / MJD at start of obs

JD = 2458896.77722 / Julian Date at start of obs

HDR\_REV = '4.00 10-Feb-2020q' / Header-Rev

UTC = '06:39:12.0' / UTC time at end of observation

LAST = '06:04:11.2' / LSTHDR local sidereal time

EPOCH = 2000.000000 / EPOCH of telescope coords

TARGRA = 35.035958 / Telescope target RA

TARGDEC = 21.698831 / Telescope target DEC

RA = '02:20:08.596' / Telescope RA

DEC = '+21:41:55.72' / Telescope DEC

RAOFFST = 0.000000 / Telescope RA offset

DECOFFST= 0.000000 / Telescope DEC offset

ZD = 51.794800 / zenith distance

AIRMASS = 1.614000 / airmass at start of exposure

FOCUS = '-0.120 ' / Telescope focus (microns)

OBJECT = 'ZTFJ0220+2141' / Object name

PA = 0.000000 / Instrument position angle

IAA = 0.000000 / Instrument Alignment angle

CRPA = 98.738000 / Current Cass Rotator Position Angle

GUIDING = 'On ' / Guide state

OBSERVAT= 'Gemini-North' / Originating Observatory

RELEASE = '2020-08-21' / End of proprietary period YYYY-MM-DD

INSTRUME= 'Alopeke ' / Instrument name

DATE-OBS= '2020-02-17' / Date of start of observation in UTC

TIMEOBS = '04:36:25' / from speckle.scope.timeobs

OBSTYPE = 'Object ' / Type of picture (object, dark, etc.)

TELESCOP= 'Gemini-North' / Specific system

RECID = '2020-02-17\_Gemini-North"' / archive ID for observation

ACT = 3.001195 / Accumulation cycle time

EXPTIME = 3.000019 / Frame Exposure time in seconds

OBSTIME = 1581920591.6140 / UTC at start of observation

EXPENDTM= 1581921552.7768 / UTC at end of observation

HEAD = 'Andor iXon Emccd' / Head model

ACQMODE = 'Kinetics mode' / Acquisition mode

KCT = 3.001195 / Kinetic cycle time

KINMODE = '1 ' / Kinetic Mode

NUMEXP = '1 ' / from speckle.scope.numexp

READMODE= 'Image ' / Readout mode

IMGRECT = '1,1024,1,1024' / Image format

EMCCD = 'On ' / EMCCD mode

FRAMEXFR= 'On ' / Frame Transfer mode

BLCLAMP = 'On ' / Bias Clamp

HBIN = 1 / Horizontal binning

VBIN = 1 / Vertical binning

SUBRECT = '300,811,220,731' / Subimage format

EXPOSURE= 960.006080 / Total Exposure Time

EMGAIN = 1000.000000 / EM Real Gain

VSSPEED = 1.130000 / Vertical Speed (usec)

HSSPEED = 1.000000 / Horizontal Speed (MHz)

OUTPTAMP= 'Electron Multiplying' / Output Amplifier

PREAMP = 2 / Pre Amplifier Gain

SERNO = 'X-10405 ' / Serial Number

UNSTTEMP= -60.000000 / Unstabilized Temperature

ACCUM = 1 / Accumulations per frame

NUMKIN = 320 / Number of kinetic frames

FILTER = 'Blue-g ' / Filter name

FLDZABER= 'wide ' / Field zaber position

INPZABER= 'wide ' / Input zaber position

CCDTEMP = -60.250000 / CCD temperature

RAWIQ = '0 ' / Image quality

RAWCC = '0 ' / Cloud cover

RAWWV = '0 ' / Water vapour

RAWBG = '0 ' / Background

HUMIDITY= '6.2 ' / from tcs.weather.humidity

OBSID = 'GN-2020A-FT-202' / Observation-ID

GEMPRGID= 'GN-2020A-FT-202' / Observation-ID

SPKLESEQ= 5 / SPECKLENFO-sequence

SPKLEDAT= 'Feb 16 20:39:13' / SPECKLENFO-timestamp

CRVAL1 = 21.698611 / Declination of reference pixel [deg]

CRVAL2 = 35.033333 / RA of reference pixel [deg]

CTYPE1 = 'DEC--TAN' / Coordinate type

CTYPE2 = 'RA--TAN ' / Coordinate type

CRPIX1 = 256 / Coordinate reference pixel in X

CRPIX2 = 256 / Coordinate reference pixel in Y

CDELT1 = 0.000000000000 / Rotation angle

CDELT2 = -0.000020138889 / Coordinate pixel scale in Y

CD1\_1 = 0.000020138889

CD1\_2 = 0.000000000000

CD2\_1 = 0.000000000000

CD2\_2 = -0.000020138889

WCSNAME = 'FK5 ' / World coordinate system type

RADECSYS= 'FK5 ' / Default coordinate system type

END

**File N20200218A0536b.fits**

SIMPLE = T / file does conform to FITS standard

BITPIX = 16 / number of bits per data pixel

NAXIS = 3 / number of data axes

NAXIS1 = 768 / length of data axis 1

NAXIS2 = 768 / length of data axis 2

NAXIS3 = 320 / length of data axis 3

EXTEND = T / FITS dataset may contain extensions

COMMENT FITS (Flexible Image Transport System) format is defined in 'Astronomy

COMMENT and Astrophysics', volume 376, page 359; bibcode: 2001A&A...376..359H

BZERO = 32768 / offset data range to that of unsigned short

BSCALE = 1 / default scaling factor

CREATOR = 'Linux ANDOR CCD control V2' / Speckle Data-taking program

MJD-OBS = 58897.241169 / MJD at start of obs

JD = 2458897.74117 / Julian Date at start of obs

HDR\_REV = '4.00 10-Feb-2020q' / Header-Rev

UTC = '05:47:17.755600' / UTC time at end of observation

LAST = '15:23:07.9' / LSTHDR local sidereal time

EPOCH = 2000.000000 / EPOCH of telescope coords

TARGRA = 35.035958333333326 / Telescope target RA

TARGDEC = 21.69883138888889 / Telescope target DEC

RA = '2:20:08.630' / Telescope RA

DEC = '+21:41:55.79' / Telescope DEC

RAOFFST = -7776000.0000 / Telescope RA offset

DECOFFST= 0.000000 / Telescope DEC offset

ZD = 0.000000 / zenith distance

AIRMASS = 1.000000 / airmass at start of exposure

FOCUS = '0.000 ' / Telescope focus (microns)

OBJECT = 'ZTFJ0220+2141' / Object name

PA = 0.000000 / Instrument position angle

IAA = 0.000000 / Instrument Alignment angle

CRPA = 0.000000 / Current Cass Rotator Position Angle

GUIDING = 'Off ' / Guide state

OBSERVAT= 'Gemini-North' / Originating Observatory

RELEASE = '2021-02-18' / End of proprietary period YYYY-MM-DD

INSTRUME= 'Alopeke ' / Instrument name

DATE-OBS= '2020-02-18' / Date of start of observation in UTC

TIMEOBS = '05:23:04' / from speckle.scope.timeobs

OBSTYPE = 'Object ' / Type of picture (object, dark, etc.)

TELESCOP= 'Gemini-North' / Specific system

RECID = '2020-02-18\_GEMINI"' / archive ID for observation

ACT = 3.001195 / Accumulation cycle time

EXPTIME = 3.000020 / Frame Exposure time in seconds

OBSTIME = 1582003876.5604 / UTC at start of observation

EXPENDTM= 1582004837.7556 / UTC at end of observation

HEAD = 'Andor iXon Emccd' / Head model

ACQMODE = 'Kinetics mode' / Acquisition mode

KCT = 3.001195 / Kinetic cycle time

KINMODE = '1 ' / Kinetic Mode

NUMEXP = '1 ' / from speckle.scope.numexp

READMODE= 'Image ' / Readout mode

IMGRECT = '1,1024,1,1024' / Image format

EMCCD = 'On ' / EMCCD mode

FRAMEXFR= 'On ' / Frame Transfer mode

BLCLAMP = 'On ' / Bias Clamp

HBIN = 1 / Horizontal binning

VBIN = 1 / Vertical binning

SUBRECT = '152,919,112,879' / Subimage format

EXPOSURE= 960.006400 / Total Exposure Time

EMGAIN = 1000.000000 / EM Real Gain

VSSPEED = 1.130000 / Vertical Speed (usec)

HSSPEED = 1.000000 / Horizontal Speed (MHz)

OUTPTAMP= 'Electron Multiplying' / Output Amplifier

PREAMP = 2 / Pre Amplifier Gain

SERNO = 'X-10405 ' / Serial Number

UNSTTEMP= -60.000000 / Unstabilized Temperature

ACCUM = 1 / Accumulations per frame

NUMKIN = 320 / Number of kinetic frames

FILTER = 'Blue-g ' / Filter name

FLDZABER= 'wide ' / Field zaber position

INPZABER= 'wide ' / Input zaber position

CCDTEMP = -59.779999 / CCD temperature

RAWIQ = '0 ' / Image quality

RAWCC = '0 ' / Cloud cover

RAWWV = '0 ' / Water vapour

RAWBG = '0 ' / Background

HUMIDITY= '20.0 ' / from tcs.weather.humidity

OBSID = 'GN-2020A-FT-202-2' / Observation-ID

GEMPRGID= 'GN-2020A-FT-202' / Observation-ID

SPKLESEQ= 4 / SPECKLENFO-sequence

SPKLEDAT= 'Feb 17 19:47:17' / SPECKLENFO-timestamp

CRVAL1 = 21.69883138888889 / Declination of reference pixel [deg]

CRVAL2 = 35.035958333333326 / RA of reference pixel [deg]

CTYPE1 = 'DEC--TAN' / Coordinate type

CTYPE2 = 'RA--TAN ' / Coordinate type

CRPIX1 = 384 / Coordinate reference pixel in X

CRPIX2 = 384 / Coordinate reference pixel in Y

CDELT1 = 0.000000000000 / Rotation angle

CDELT2 = -0.000020138889 / Coordinate pixel scale in Y

CD1\_1 = 0.000020138889

CD1\_2 = 0.000000000000

CD2\_1 = 0.000000000000

CD2\_2 = -0.000020138889

WCSNAME = 'FK5 ' / World coordinate system type

RADECSYS= 'FK5 ' / Default coordinate system type

END