数据产品介绍
及
用户相关协助

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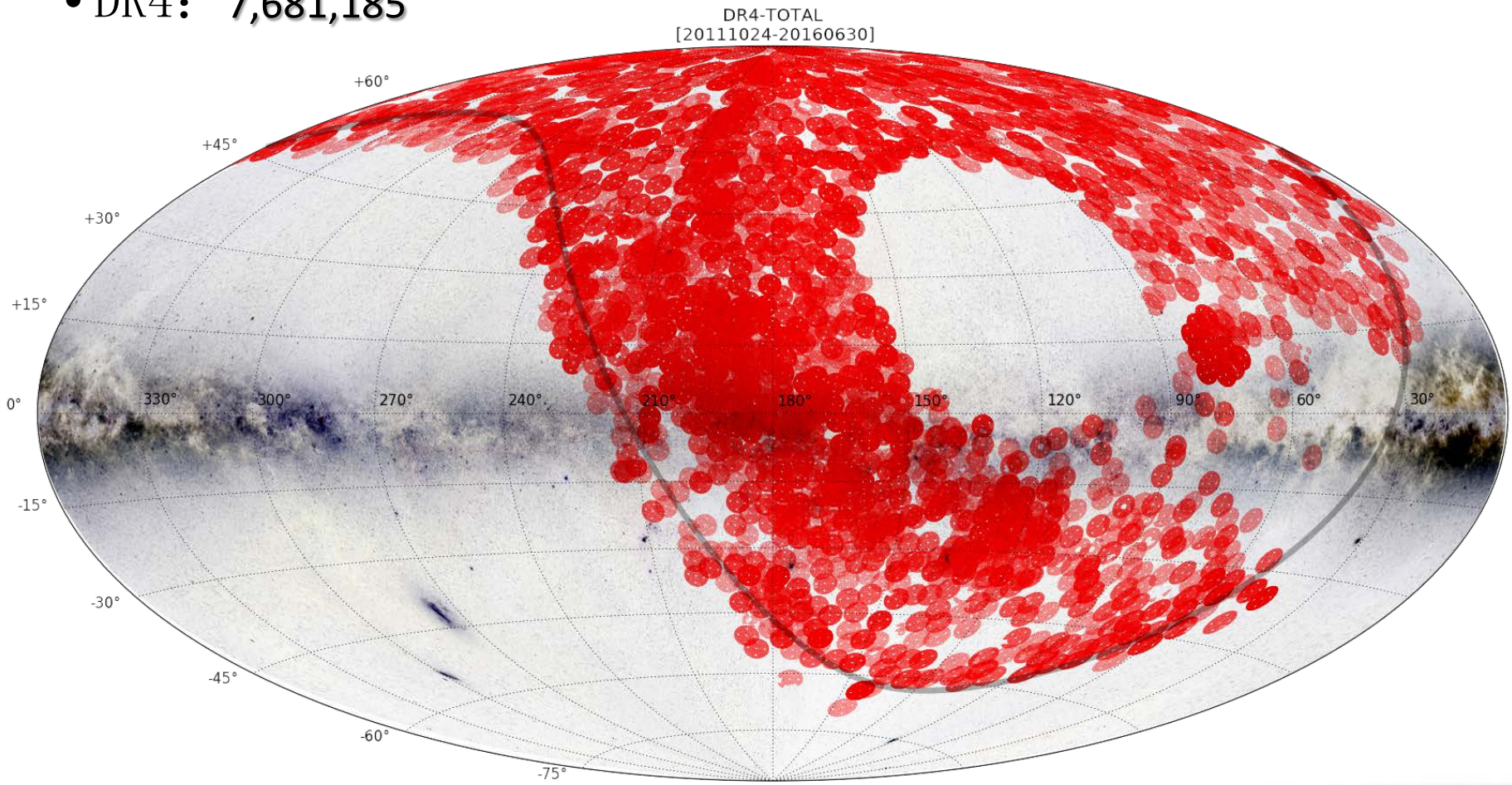
LAMOST数据处理部
2017.2.18

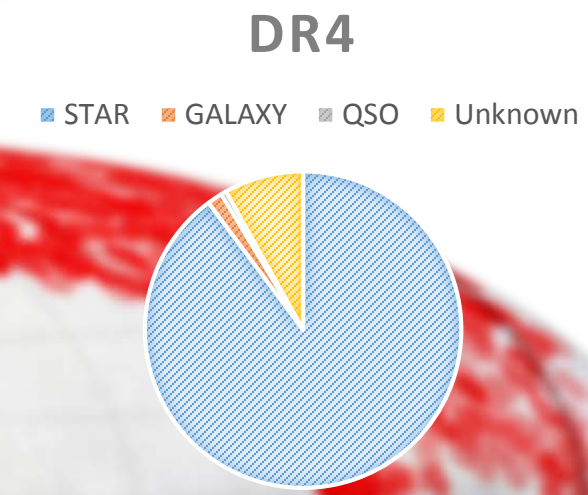
提纲

- 数据的生产销售
- 数据产品简介
- 售后服务

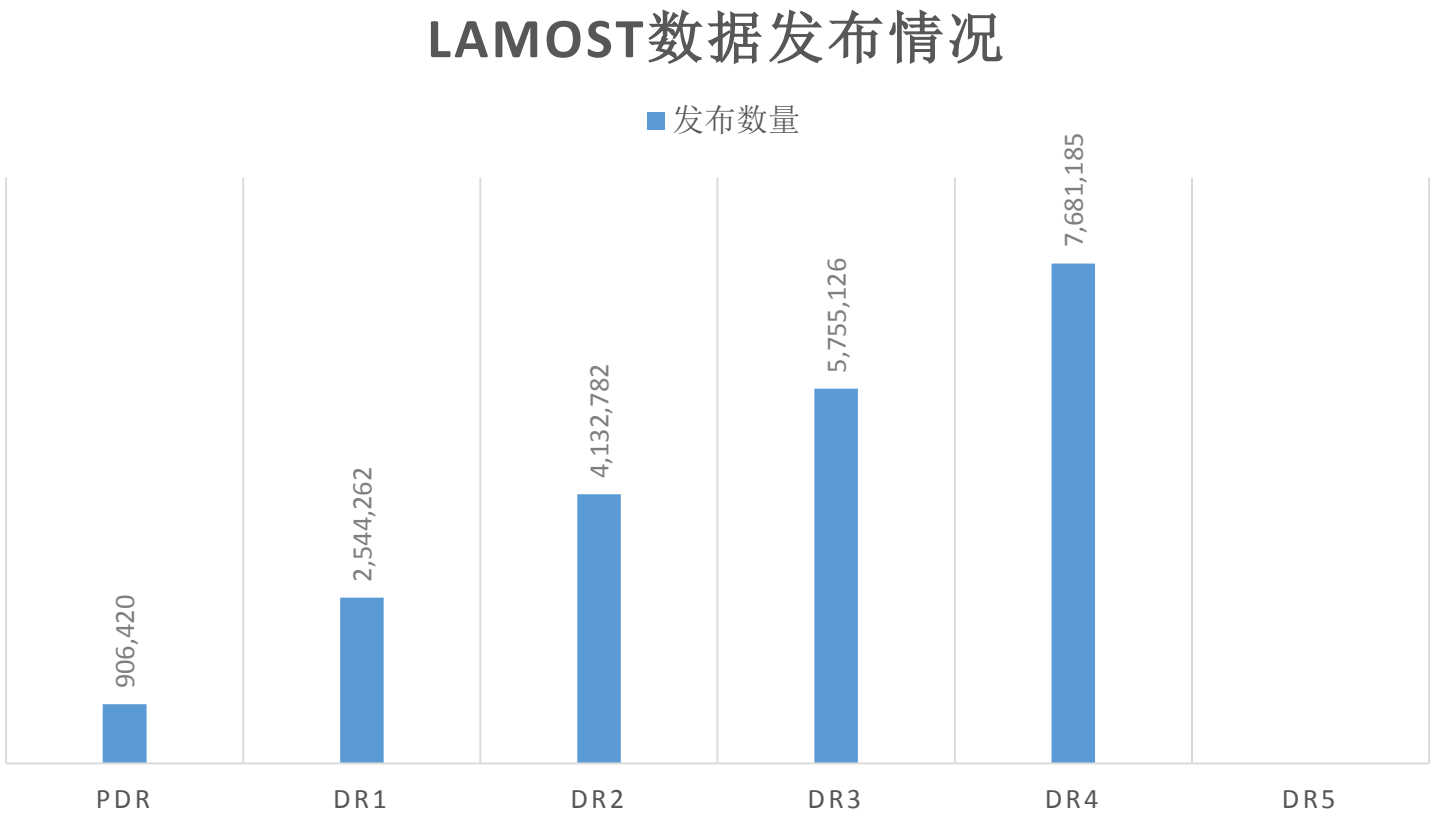
- DR4： **7,681,185**


DR4-TOTAL
[20111024-20160630]
+60°
+45°
+30°
+15°
0°
-15°
-30°
-45°
-60°
-75°
330°
300°
270°
240°
210°
180°
150°
120°
90°
60°
30°

- 国内发布DR4数据产品
  - FITS文件
  - PNG光谱图片
  - Catalog
  - 天光数据



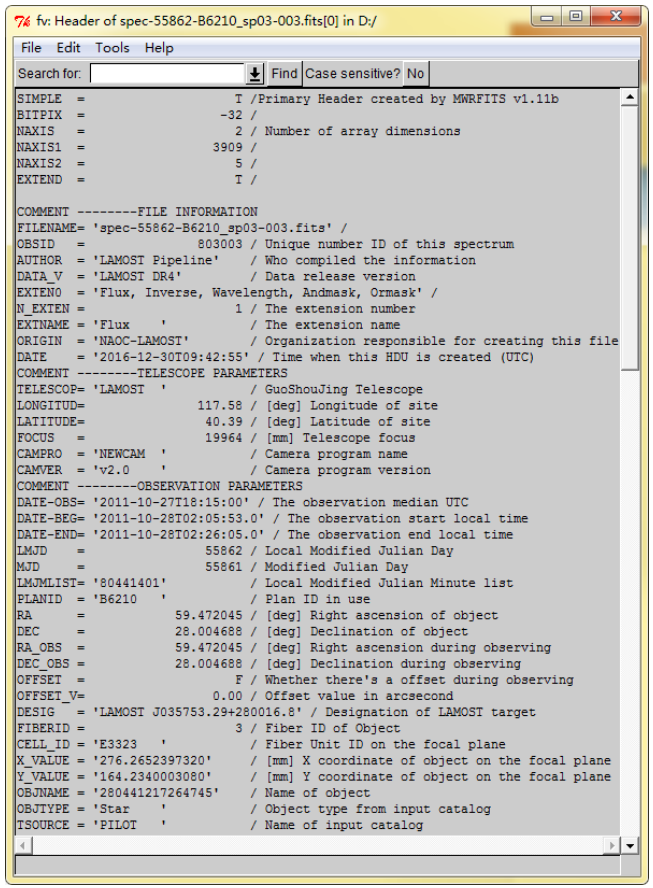
	发布数据
STAR	6,898,298
GALAXY	118,743
QSO	41,352
Unknown	622,792
合计	7,681,185


LAMOST数据发布情况
发布数量
906,420
2,544,262
4,132,782
5,755,126
7,681,185
PDR
DR1
DR2
DR3
DR4
DR5

数据产品-光谱数据文件（FITS）

- 命名规则
  - spec-‘lmjd'-'planid'_sp'spid'-'fiberid'.fits
  - 例spec-55890-B9002_sp01-048.fits
- 内容
  - http://dr4.lamost.org/doc/data-production-description
  - FITS Head
    - FILE INFORMATION
    - TELESCOPE PARAMETERS
    - OBSERVATION PARAMETERS
    - SPECTROGRAPH PARAMETERS
    - WEATHER CONDITION
    - DATA REDUCTION PARAMETERS
    - SPECTRA ANALYSIS RESULTS
  - FITS Data
    - Flux
    - Inverse
    - Wavelength
    - Andmask
    - Ormask

FITS Head



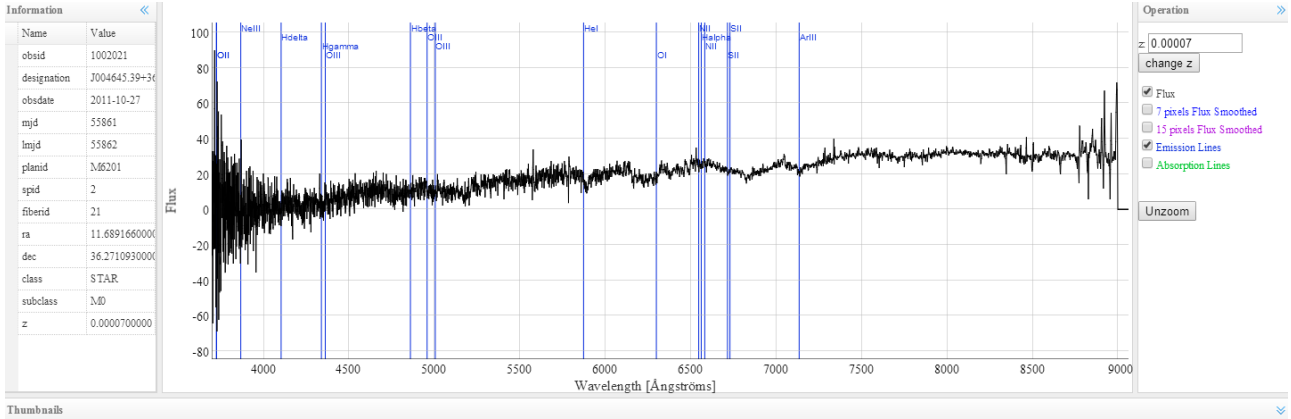
FITS Data

Row Number	Data	Type
5	Ormask	float
4	Andmask	float
3	WaveLength	float
2	Inverse Variance	float
1	Flux	float

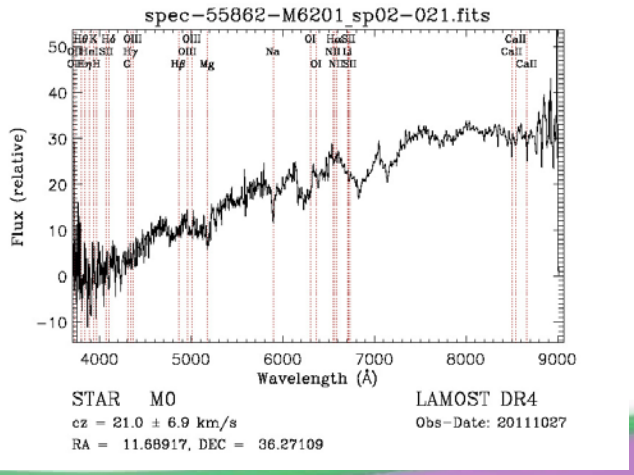
Bit	Keyword	Comments
1	BADCCD	bad pixel on CCD
2	BADPROFILE	bad profile in extraction
3	NOSKY	no sky information at this wavelength
4	BRIGHTSKY	sky level too high
5	BADCENTER	fiber trace out of the CCD
6	NODATA	no good data

数据产品-光谱图片

- 在线浏览



- PNG文件



数据产品-天光数据（FITS）

```
SIMPLE  =                    T /
BITPIX  =                  -64 /
NAXIS   =                    2 /
NAXIS1  =                 3901 /
NAXIS2  =                  250 /
EXTEND  =                    T /Extensions may be present

COMMENT --------FILE INFORMATION
FILENAME= 'sky-55859-F5902_sp09.fits' /
AUTHOR  = 'LAMOST Pipeline'    / Who compiled the information
DATA_V  = 'LAMOST DR4'         / Data release version
EXTEN0  = 'Sky     '           /
N_EXTEN =                    1 / The extension number
EXTNAME = 'Sky     '           / The extension name
ORIGIN  = 'NAOC-LAMOST'        / Organization responsible for creating this file
DATE    = '2016-12-26T02:07:17' / Time when this HDU is created (UTC)
TELESCOP= 'LAMOST  '           / GuoShouJing Telescope
LONGITUD=               117.58 / [deg] Longitude of site
LATITUDE=                40.39 / [deg] Latitude of site
FOCUS   =                19964 / [mm] Telescope focus
CAMPRO  = 'NEWCAM  '           / Camera program name
CAMVER  = 'v2.0    '           / Camera program version
DATE-OBS= '2011-10-24T12:30:00' / The observation median UTC
DATE-BEG= '2011-10-24T19:33:53.0' / The observation start local time
DATE-END= '2011-10-24T21:27:28.0' / The observation end local time
LMJD    =                55859 / Local Modified Julian Day
MJD     =                55858 / Modified Julian Day
LMJMLIST= '80436692-80436737-80436775' / Local Modified Julian Minute list
PLANID  = 'F5902   '           / Plan ID in use
SPID    =                    9 / Spectrograph ID
SLIT_MOD= 'x2/3    '           / Slit mode, x1, x2/3 or x1/2
LAMPLIST= 'lamphgcdne.dat'     / Arc lamp emission line list
SKYLIST = 'skylines.dat'       / Sky emission line list
NEXP    =                    3 / Number of valid exposures
EXPTIME =              5400.00 / [s] Minimum of exposure time for all cameras
SCAMEAN =                 2.50 / [ADU] Mean level of scatter light
TEMPCCDB=              -112.70 / [deg] The temperature of blue CCD
TEMPCCDR=              -121.70 / [deg] The temperature of red CCD
SEEING  =                 4.50 / [arcsec] Seeing during exposure
MOONPHA =                28.30 / [day] Moon phase for a 29.53 days period
TEMP_AIR=                 2.90 / [deg] Temperature outside dome
```

- 数据格式：
  - sky-lmjd-planid_spspid.fits.gz
- 数据单位：
  - spid

- 数据：拼接好的天光数据
- FITS头：只保留与光谱仪信息有关的字段

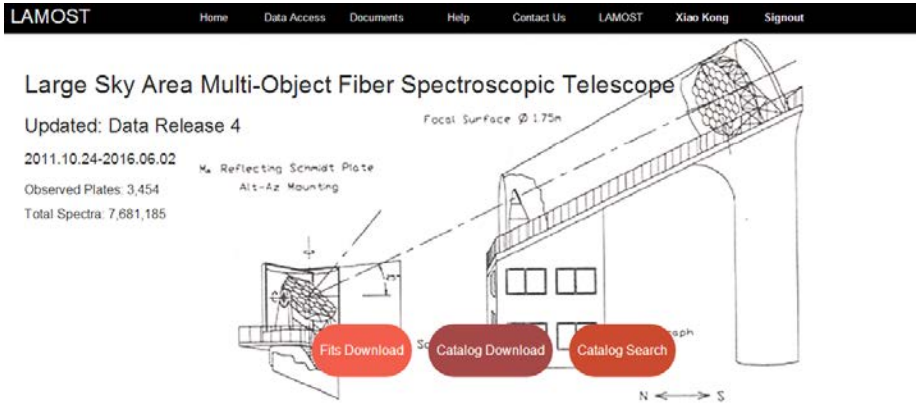
- DR4：52,316个文件

数据产品-Catalog（CSV/FITS）

- General Catalog
  - obsID,designation,obsDate,mjd,lmjd,planID,spID,fiberID,ra,dec,ra_obs,dec_obs,offset,offset_v,snru,snrg,snrr,snri,snrz,objType,class,subclass,magType,mag1,mag2,mag3,mag4,mag5,mag6,mag7,tsource,fiberType,tfrom,tcomment,z,zerr
- A,F,G and K type stars catalog
  - teff,tefferr,log,logger,feh,feherr
- A type stars catalog
  - KP6,KP12,KP18,Halpha12,Halpha24,Halpha48,Halpha70,Hbeta12,Hbeta24,Hbeta48,Hbeta60,Hgamma12,Hgamma24,Hgamma48,Hgamma54,Hdelta12,Hdelta24,Hdelta48,Hdelta64,Paschen13,Paschen142,Paschen242,HalphaD0.2,HbetaD0.2,HgamaD0.2,HdeltaD0.2
- M type stars catalog
  - ewHa,ewHaErr,TiO1,TiO1Err,TiO2,TiO2Err,TiO3,TiO3Err,TiO4,TiO4Err,TiO5,TiO5Err,CaH1,CaH1Err,CaH2,CaH2Err,CaH3,CaH3Err,CaOH,CaOHErr,Na,zeta,zetaerr,type
- Observed plate information catalog
  - pID,obsDate,planID,cra,cdec,cmag,seeing,expTime,MJM

数据产品的获取

- 发布网站
  - http://dr4.lamost.org/
- 数据说明
  - http://dr4.lamost.org/doc/data-production-description
- 帮助
  - http://dr4.lamost.org/doc/query-introduction

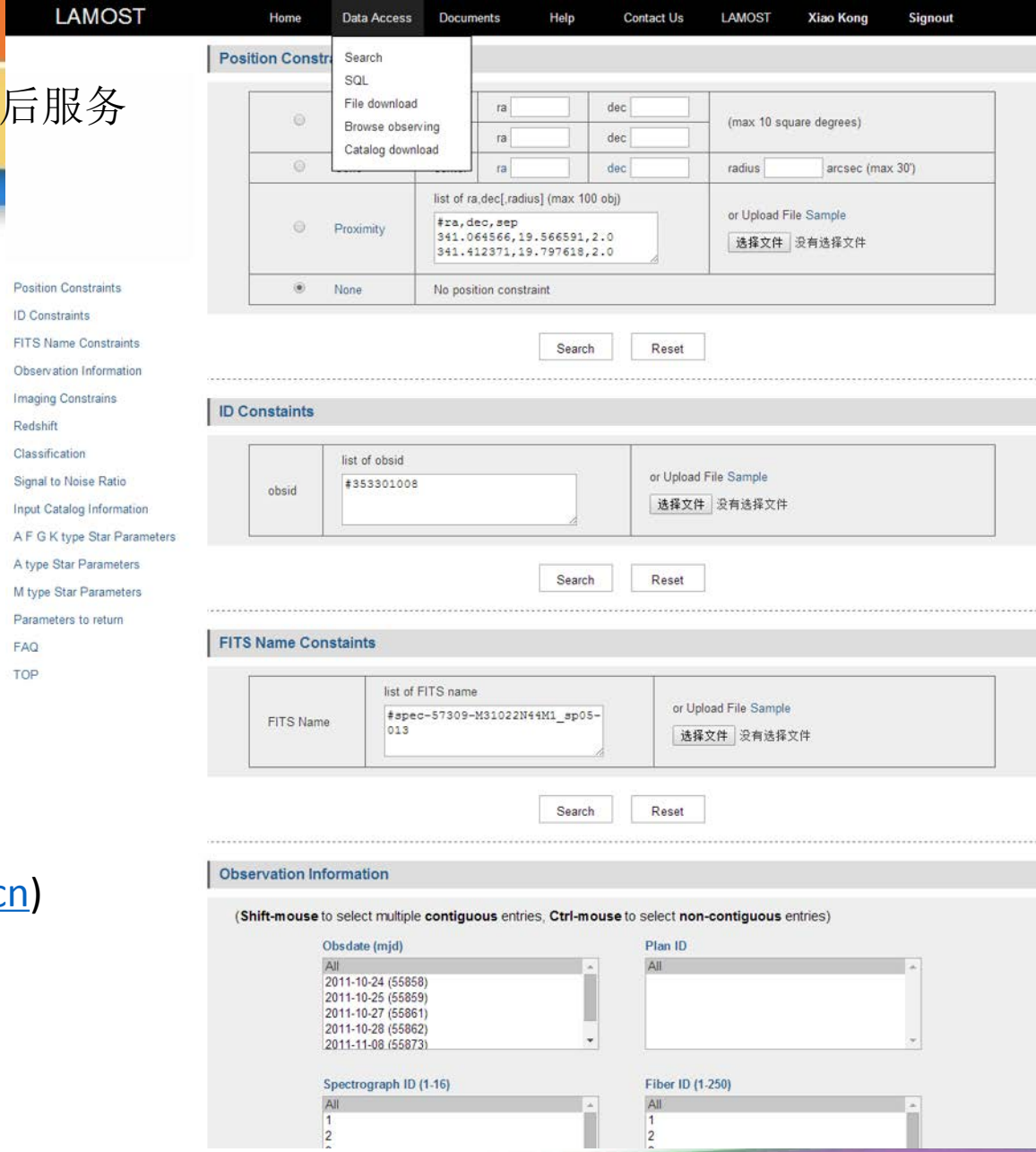


Statistics

	Pilot Survey 20111024-20120617	First Year Survey 20120928-20130603	Second Year Survey 20130910-20140603	Third Year Survey 20140910-20150530	Forth Year Survey 20150912-20160602
Total Spectra	958,944	1,701,669	1,648,485	1,659,028	1,713,059
Star	812,911	1,529,938	1,501,002	1,511,032	1,543,415
Star ($SN_{g\ or\ i} > 10$)	619,151	1,306,584	1,367,865	1,371,471	1,411,139
Galaxy	8,465	13,029	30,887	26,917	39,445
QSO	2,026	6,772	7,002	9,294	16,258
Unknown	135,542	151,930	109,594	111,785	113,941
Observed Plates	404	810	731	734	775
AFGK Stars Catalog	396,249	731,623	1,046,940	1,010,663	1,016,652
A Stars Catalog	53,268	69,130	71,305	78,121	92,776
M Dwarfs Catalog	83,415	67,279	78,988	104,111	99,454

数据产品的获取

- Search
- SQL
- File download
- Browse observing
- Catalog download



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- 数据维护
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Thank You!

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