

Algumas noções de IRAF

1 - O IRAF

2 - Exemplo de redução de dados
espectroscópicos

3 - programação no IRAF

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IAG - USP

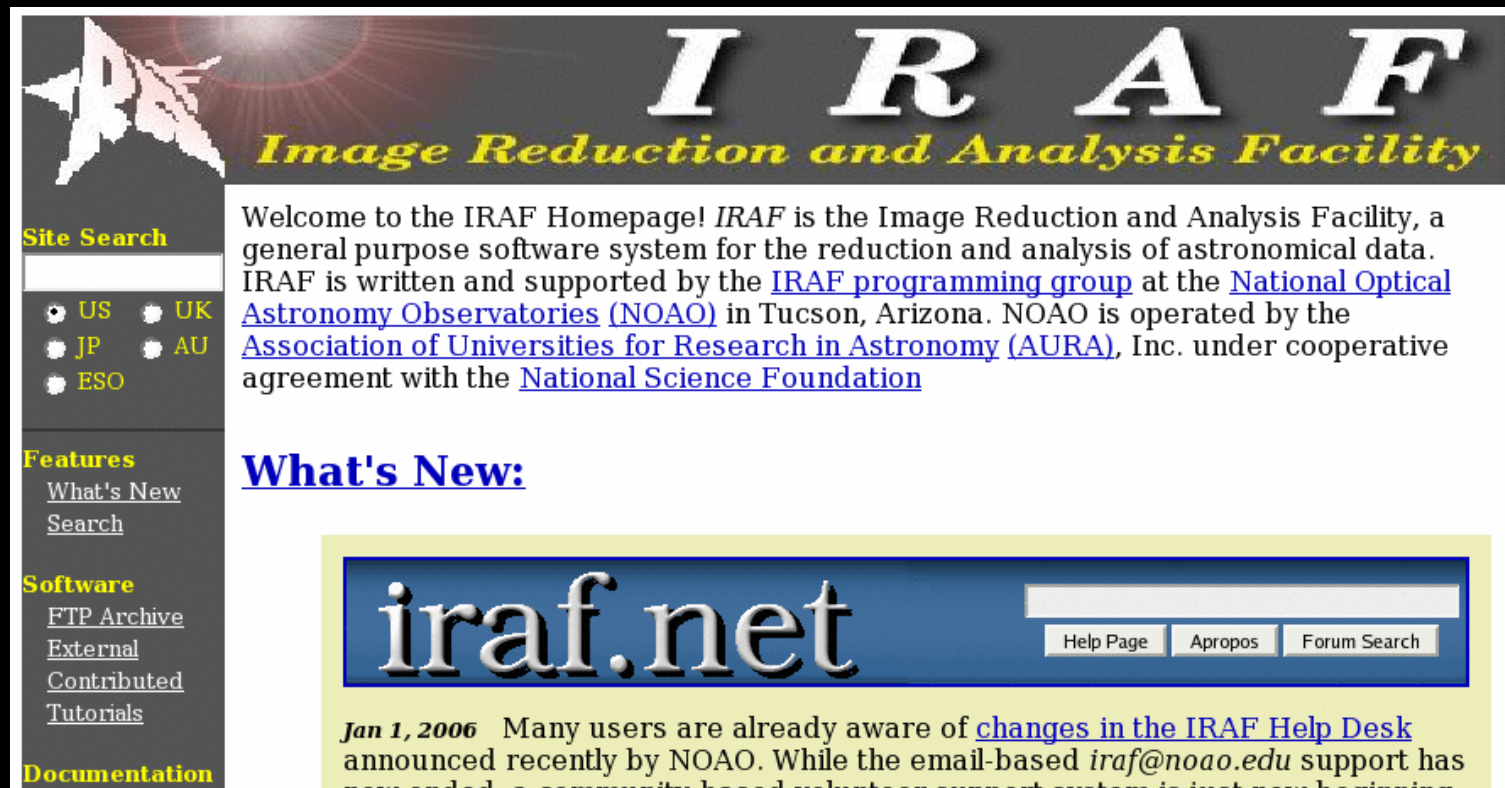
O que é?

IRAF = Image Reduction and Analysis Facility

site: <http://iraf.noao.edu>

contém

- software
- manuais



The screenshot shows the IRAF homepage. At the top, there is a logo on the left and the text "IRAF Image Reduction and Analysis Facility" in a large, stylized font. Below the logo, there is a "Site Search" section with a search bar and a list of country codes: US, UK, JP, AU, and ESO. To the right of the search bar, there is a "Features" section with links for "What's New" and "Search". Below that, there is a "Software" section with links for "FTP Archive", "External", "Contributed", and "Tutorials". At the bottom left, there is a "Documentation" section. The main content area features a "Welcome to the IRAF Homepage!" message, followed by a paragraph describing the facility and its support by NOAO and AURA. Below this, there is a "What's New:" section with a date "Jan 1, 2006" and a link to "changes in the IRAF Help Desk". At the bottom, there is a banner for "iraf.net" with a search bar and buttons for "Help Page", "Apropos", and "Forum Search".

IRAF
Image Reduction and Analysis Facility

Welcome to the IRAF Homepage! *IRAF* is the Image Reduction and Analysis Facility, a general purpose software system for the reduction and analysis of astronomical data. IRAF is written and supported by the [IRAF programming group](#) at the [National Optical Astronomy Observatories \(NOAO\)](#) in Tucson, Arizona. NOAO is operated by the [Association of Universities for Research in Astronomy \(AURA\)](#), Inc. under cooperative agreement with the [National Science Foundation](#)

What's New:

Jan 1, 2006 Many users are already aware of [changes in the IRAF Help Desk](#) announced recently by NOAO. While the email-based iraf@noao.edu support has now ended, a community-based volunteer support system is just now beginning.

iraf.net

Help Page Apropos Forum Search

Documentation

- What's New
- Search
- FTP Archive
- External
- Contributed
- Tutorials

Site Search

- US
- UK
- JP
- AU
- ESO

Instalação:

1) baixar do site os arquivos da sua distribuição:

Current IRAF V2.12 / X11IRAF V1.3 Releases

(16 July 2002) The IRAF V2.12.1 and V2.12.2 EXPORT and X11IRAF V1.3.1 releases are now available for ALL platforms from the [IRAF ftp archive](#). Please see the [IRAF Release Notes](#) for a detailed list of changes in V2.12 as well as the [README](#) file for each system for platform-specific information. Details of what's been changed in the V2.12.2 patch release can be found in the [Patch Release Announcement](#).

Platform	Version	README	Distro	Install Guide	SM Guide	Patch 2
Sun/IRAF	V2.12.2	README	FTP Dir	suniraf.ps.Z	unixsmg.ps.Z	patch2.tar.gz
PC-IRAF	V2.12.2	README	FTP Dir	pciraf.ps.gz	unixsmg.ps.gz	patch2.tar.gz
DUNX/IRAF	V2.12.1	README	FTP Dir	dunxiraf.ps.Z	unixsmg.ps.Z	
HPUX/IRAF	V2.12.1	README	FTP Dir	hpuxiraf.ps.Z	unixsmg.ps.gz	
IRIX/IRAF	V2.12.1	README	FTP Dir	irixiraf.ps.Z	unixsmg.ps.gz	
X11IRAF	V1.3.1	README	FTP Dir			

[IRAF/X11IRAF Release Errata](#) (Updated 13 Aug 2003)

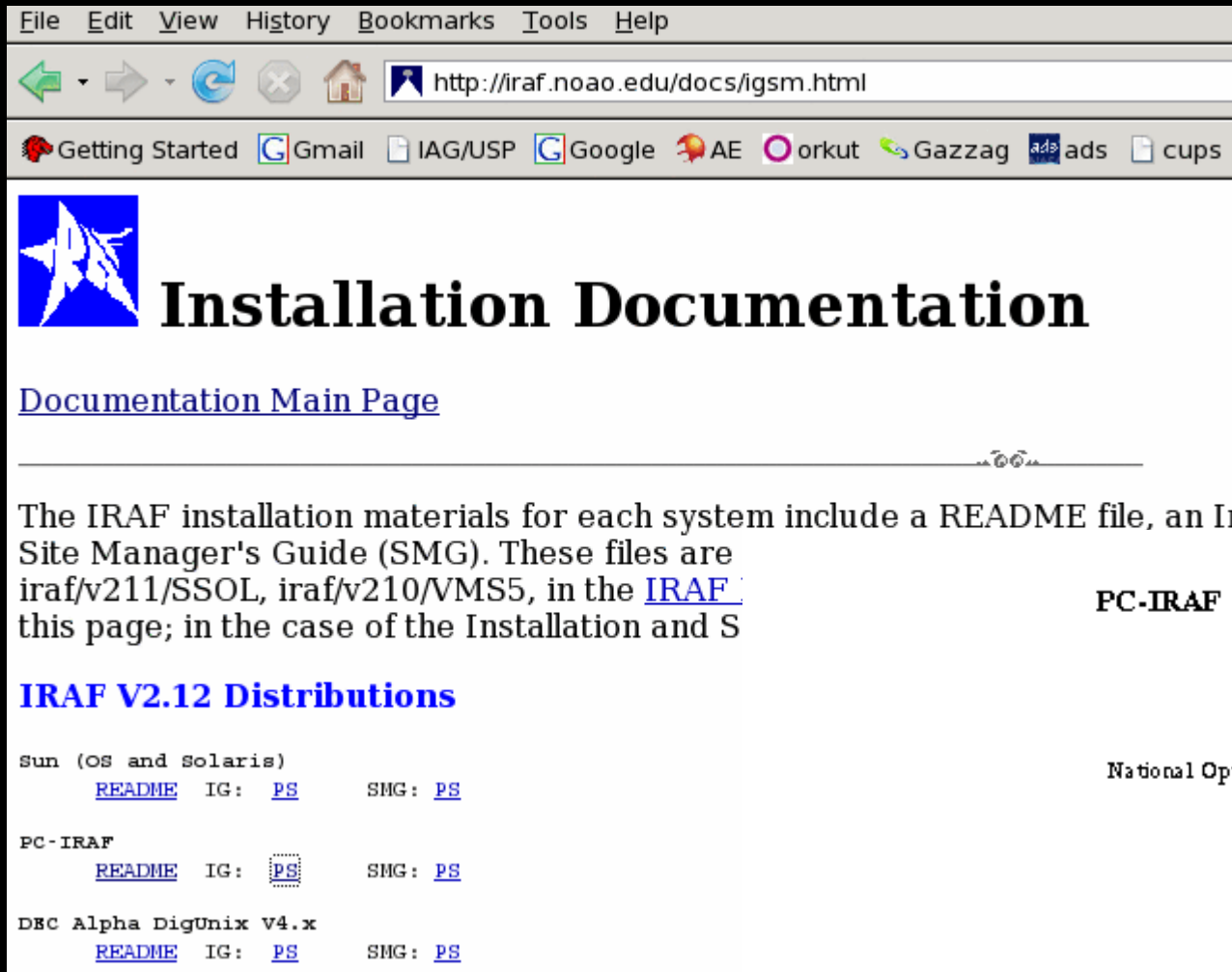
[IRAF \(and more\) on Mac OSX](#) (User Contrib Page)

System	Distribution	Add'l Systems
FreeBSD 4.2 and higher	FBSD	
MacOSX 10.1 and higher	MACX	
RedHat Linux V6.x thru V8.x	RHUX	Mandrake 7.x and 8.x
Slackware V8.x and V9.x	LNUX/x86	Debian 2.x, all others
Solaris 7 for Intel	SSOL	
SuSE Linux V6.x thru V7.x	SUSE	
Yellow Dog Linux V3.0	LNUX/ppc	

Index of /iraf/ftp/iraf/v212/PCIX

Icon	Name	Last modified	Size	Description[DIR]	Parent Directory
[]	CHECKSUMS	06-Feb-2004 15:22	1.0K		
[]	as.pcix.gen.gz	05-Feb-2004 15:42	21M	GZIP compressed docume>	
[]	db.rhux.x86.gz	02-Feb-2004 21:45	19M	GZIP compressed docume>	
[TXT]	guiapps.readme	13-Jun-2003 12:18	6.6K		
[CMP]	guiapps.tar.Z	13-Jun-2003 12:05	70M	tar archive	
[]	ib.fbsd.x86.gz	03-Feb-2004 23:05	15M	GZIP compressed docume>	
[]	ib.linux.ppc.gz	03-Feb-2004 23:07	16M	GZIP compressed docume>	
[]	ib.linux.x86.gz	03-Feb-2004 23:08	13M	GZIP compressed docume>	
[]	ib.macx.ppc.gz	06-Feb-2004 15:07	19M	GZIP compressed docume>	
[]	ib.rhux.x86.gz	03-Feb-2004 23:12	13M	GZIP compressed docume>	
[]	ib.ssol.x86.gz	03-Feb-2004 23:13	13M	GZIP compressed docume>	
[]	ib.suse.x86.gz	03-Feb-2004 23:15	13M	GZIP compressed docume>	
[]	nb.fbsd.x86.gz	02-Feb-2004 21:59	21M	GZIP compressed docume>	
[]	nb.linux.ppc.gz	02-Feb-2004 22:02	21M	GZIP compressed docume>	
[]	nb.linux.x86.gz	02-Feb-2004 22:04	18M	GZIP compressed docume>	
[]	nb.macx.ppc.gz	02-Feb-2004 22:06	25M	GZIP compressed docume>	
[]	nb.rhux.x86.gz	02-Feb-2004 22:08	18M	GZIP compressed docume>	
[]	nb.ssol.x86.gz	02-Feb-2004 22:10	19M	GZIP compressed docume>	
[]	nb.suse.x86.gz	02-Feb-2004 22:12	18M	GZIP compressed docume>	
[]	patch1.tar.gz	13-Sep-2002 11:12	581K	GZIP compressed docume>	
[]	patch2.tar.gz	05-Feb-2004 16:31	7.7M	GZIP compressed docume>	
[DIR]	patch2a/	15-Jul-2004 12:28	-		
[]	pciraf.ms.gz	16-Jul-2002 13:05	17K	GZIP compressed docume>	
[]	pciraf.ps.gz	16-Jul-2002 13:05	42K	GZIP compressed docume>	
[DIR]	redhat9/	07-Feb-2004 21:11	-		
[DIR]	slack40/	12-Feb-2004 14:56	-		
[DIR]	splits/	07-Feb-2004 23:20	-		
[]	unixsmg.ms.gz	04-May-2002 22:42	33K	GZIP compressed docume>	
[]	unixsmg.ps.gz	04-May-2002 22:43	83K	GZIP compressed docume>	
[TXT]	v2122revs.txt	07-Feb-2004 15:07	24K		
[TXT]	zzmake	03-Dec-1999 13:58	2.8K		


documentação para instalação:



File Edit View History Bookmarks Tools Help

http://iraf.noao.edu/docs/igsm.html

Getting Started Gmail IAG/USP Google AE orkut Gazzag ads cups



Installation Documentation

[Documentation Main Page](#)

The IRAF installation materials for each system include a README file, an Installation and Site Manager's Guide (SMG). These files are [iraf/v211/SSOL](#), [iraf/v210/VMS5](#), in the [IRAF](#) [this page](#); in the case of the Installation and S

IRAF V2.12 Distributions

Sun (OS and Solaris)	README	IG: PS	SMG: PS
PC-IRAF	README	IG: PS	SMG: PS
DEC Alpha DigUnix V4.x	README	IG: PS	SMG: PS

PC-IRAF V2.12 Installation Guide

*Doug Tody
Mike Fitzpatrick*

IRAF Group
National Optical Astronomy Observatory†
May 2002

ABSTRACT

This document describes how to install or update IRAF on an Intel-based PC running either Linux, FreeBSD, or Solaris, or a PowerPC based Macintosh running Mac OS X. Both standalone and networked, multiple architecture configurations are described. Only those issues which one must understand to install IRAF are discussed here; a companion document, the *SUNix IRAF V2.12 Site Manager's Guide*, deals with other issues such as interfacing new devices, configuring the IRAF networking system, adding layered software, and so on.

procedimento para instalação:

- entrar como superusuário

```
> su
```

- criar uma conta para o usuário iraf, com diretório home /iraf/iraf/local e shell /bin/csh

```
# adduser
```

- entrar como usuário iraf

```
# su iraf
```

- conferir o usuário

```
% whoami
```

```
iraf
```

- criar o diretório raiz da instalação e definir o 'atalho' iraf

```
% mkdir /iraf/iraf
```

```
% setenv iraf /iraf/iraf/
```

- entrar no diretório definido

```
% cd $iraf
```

- descompactar a distribuição principal do IRAF

```
% tar -zxvf as.pcix.gen.gz
```

- criar os diretório para os binários

```
% cd $iraf
```

```
% mkdir irafbin
```

```
% mkdir irafbin/bin.linux
```

```
% mkdir irafbin/noao.bin.linux
```

- descompactar os binários linux

```
% cd $iraf/bin.linux
```

```
% tar -zxvf ib.linux.x86.gz
```

- descompactar os binários noao

```
% cd $iraf/noao/bin.linux
```

```
% tar -zxvf nb.linux.x86.gz
```

- rodar script de instalação como teste

```
% cd $iraf/unix/hlib
```

```
% source irafuser.csh
```

```
% ./install -n
```

- rodar script de instalação

```
% su
```

```
# ./install
```

```
# exit
```

```
% ./install -n ++
```

IRAF V2.12 System Installation

=====

Welcome to the IRAF installation script. This script will first prompt you for several needed path names. The system will be verified for proper structure before the actual install begins, all error must must be corrected before you will be allowed to continue. Recommendations for fixing problems will be made but no corrective action will be taken directly. Once properly installed, you will be allowed to do some minimal configuration.

For each prompt: hit <CR> to accept the default value, 'q' to quit or 'help' or '?' to print an explanation of the prompt.

=====

Query for System Settings

=====

New iraf root directory (/iraf/iraf):

Default root image storage directory (/iraf/indirs):

Local unix commands directory (/usr/local/bin):

Tapecap Device File Config

By default IRAF will search for a dev\$tapecap.<node> file (where <node> is the system name) when looking for a tape configuration file. Platforms such as PC-IRAF and Sun/IRAF support multiple OS versions and so the proper template file must be used. This configuration will allow you to setup a default tapecap for this system, it may be skipped if this machine has no tape drive attached.

Create a default tapecap file? (yes): (1)

Creating default file 'tapecap.vmware' from tapecap.linux...

In the event a dev\$tapecap.<node> file is not found on this system IRAF will fallback to use just dev\$tapecap. In cases where the node name changes, this installation is shared with another machine or in a local network, or any case where a tapecap.<node> is not found, the dev\$tapecap file will be the default tapecap used for all IRAF systems.

Do you wish to create a default dev\$tapecap link? (yes): (2)

Tapecap symlink 'tapecap' exists but is invalid....

Deleting invalid link....

Creating default dev\$tapecap link to dev\$tapecap.linux...

Delete Unneeded HSI Binaries

The following bin directories in the iraf\$unix directories were found to be unused on this machine:

```
( 5040 Kb) /iraf/iraf/unix/bin.freebsd
( 9555 Kb) /iraf/iraf/unix/bin.linux
(  314 Kb) /iraf/iraf/unix/bin.linuxppc
( 3258 Kb) /iraf/iraf/unix/bin.macosx
( 2403 Kb) /iraf/iraf/unix/bin.sunos
( 7719 Kb) /iraf/iraf/unix/bin.suse
```

The contents of these directories may be safely deleted to reclaim about 28 Mb of disk space without affecting the IRAF runtime system.

Do you wish to delete these unused HSI binaries? (yes):

Delete HSI binaries in bin.freebsd ... [OK]

Delete HSI binaries in bin.linuxppc ... [OK]

⋮

Strip IRAF System Sources

Source code for all IRAF tasks and interfaces is included with this installation, but is strictly only required if you plan to develop this code. The sources may be deleted from the system without affecting the runtime environment (including help pages, compilation of external packages or local task development) allowing you to reclaim 50-60Mb of disk space for the system. Stripping sources is recommended for systems very short on space, leaving it on the system will allow IRAF site support to send code fixes and compilation instructions as needed to fix problems which have no other workaround.

Do you wish to strip the system of sources? (no): yes

```
Stripping core system sources ...      [ OK ]
Stripping NOAO package sources ...     [ OK ]
```

- **ler novo .login**

% cd

% source .login

% rehash

- **testar se tudo ok**

% cl

para pacotes externos, ver instruções de instalação específicas
para cada caso

Kit básico de sobrevivência:

O arquivo login.cl

```
xterm
# LOGIN.CL -- User login file for the IRAF command language.

# Identify login.cl version (checked in images.cl).
if (defpar ("logver"))
    logver = "IRAF V2.12.2 January 2004"

set     home           = "/home/fabiola/"
set     imdir          = "/home/fabiola/indir/"
set     uparm          = "/home/fabiola/uparm/"
set     userid         = "fabiola"
set     tmp            = "/home/fabiola/tmp"

# Set the terminal type.
if (envget("TERM") == "xterm") {
    if (!access (".hushiraf"))
        print "setting terminal type to xgterm..."
    stty xgterm
} else {
    if (!access (".hushiraf"))
        print "setting terminal type to xgterm..."
    stty xgterm
}

1,1 Command
```

```
xterm
# Uncomment and edit to change the defaults.
set      editor      = vi
set      printer     = lp
#set     pspage       = "letter"
set      stdimage    = int800
#set     stdimcur     = stdimage
#set     stdplot      = lw
set      clobber     = no
#set     filewait     = yes
#set     cmbuflen     = 512000
set      min_lenuserarea = 64000
set      imtype      = "imh"
#set     imextn       = "oif:imh fxf:fits,fit plf:pl qpf:qp stf:hhh,??h"

# IMTOOL/XIMAGE stuff. Set node to the name of your workstation to
# enable remote image display.
set      node        = "my_workstation!"

# CL parameters you might want to change.
#ehinit  = "nostandout eol noverify"
#epinit  = "standout showall"
showtype = yes
█

46,1 Command
```

```
mtclean
else
  delete uparm$mt?.lok,uparm$*.wcs verify-

# List any packages you want loaded at login time, ONE PER LINE.
images      # general image operators
plot        # graphics tasks
dataio      # data conversions, import export
lists       # list processing
ctio
cvprogs

# The if(deftask...) is needed for V2.9 compatibility.
if (deftask ("proto"))
  proto     # prototype or ad hoc tasks

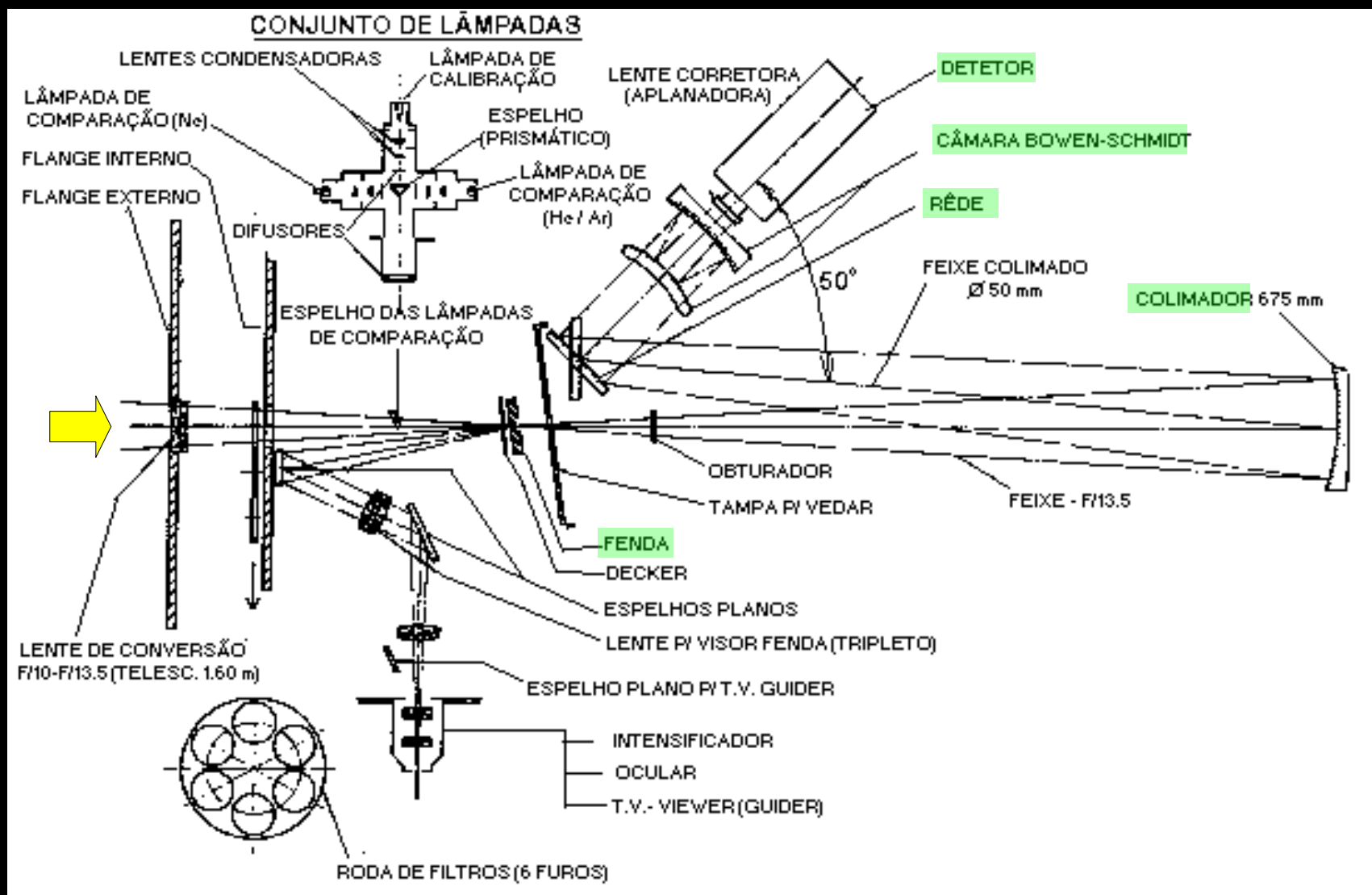
tv          # image display
utilities   # miscellaneous utilities
noao       # optical astronomy packages
```

```
keep
```

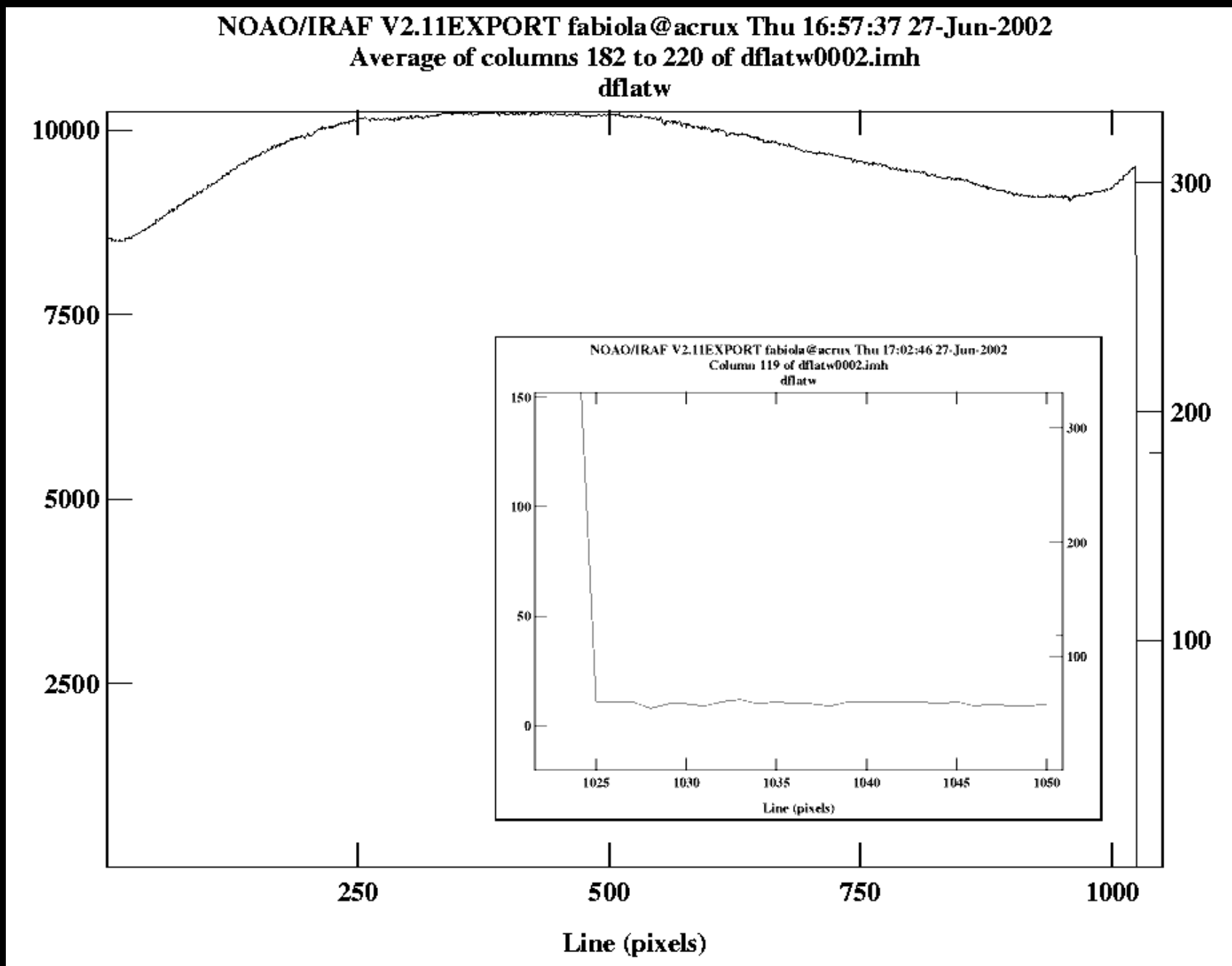


no iraf...

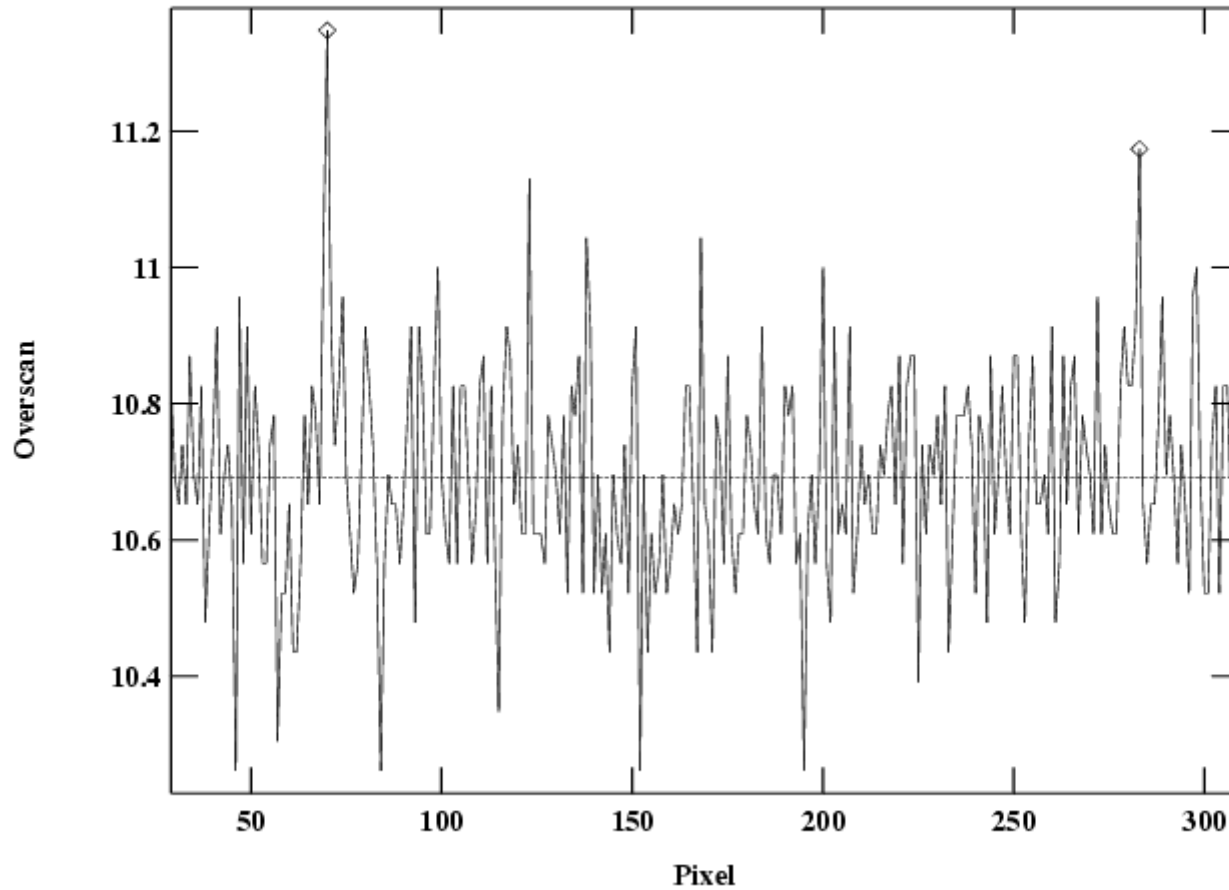
Exemplo de redução de dados espectroscópicos



corde e correções aditivas:



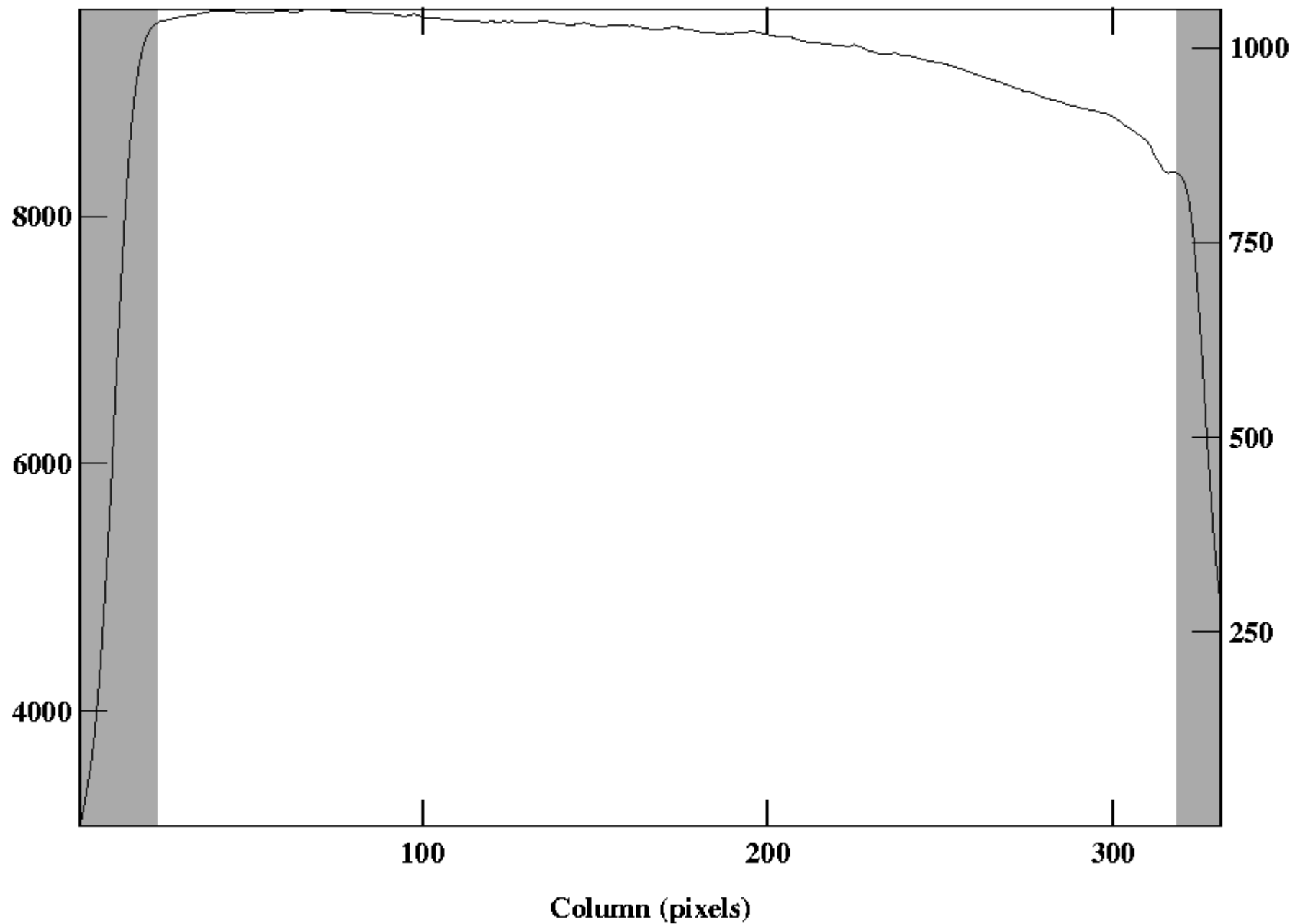
NOAO/IRAF V2.11EXPORT fabiola@acrux Wed 07:02:28 24-Jul-2002
func=legendre, order=1, low_rej=3, high_rej=3, niterate=1, grow=0
total=281, sample=281, rejected=2, deleted=0, RMS= 0.1499
Overscan vector for vs0001.imh from section [29:309,1027:1049]

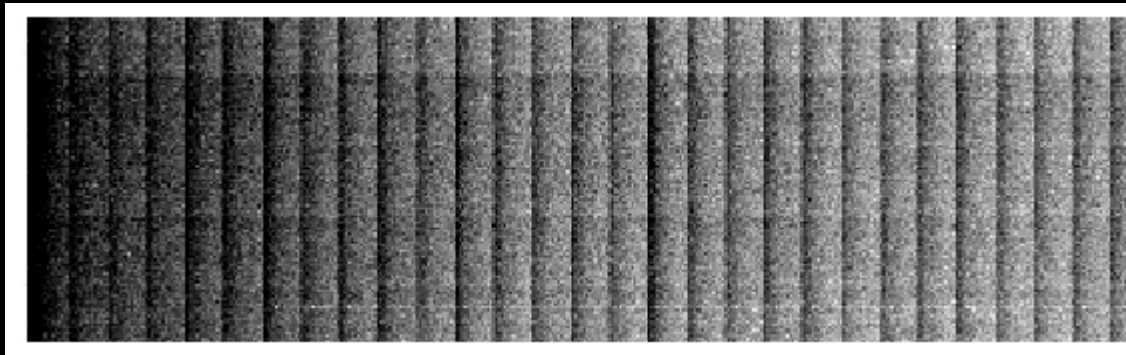


NOAO/IRAF V2.11EXPORT fabiola@acrux Thu 16:57:57 27-Jun-2002

Average of lines 1 to 1050 of dflatw0002.imh

dflatw





média das imagens de
bias

overscan: nível zero da eletrônica - varia de exposição para
exposição

bias: variação pixel a pixel do nível zero - igual para todas
as exposições

neste caso não fizemos correções de corrente de escuro: ruído
térmico do ccd: eliminado com o resfriamento do ccd

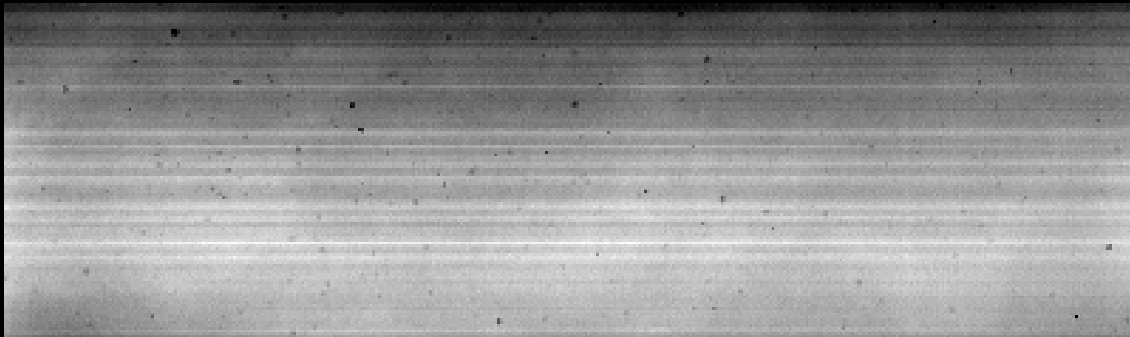
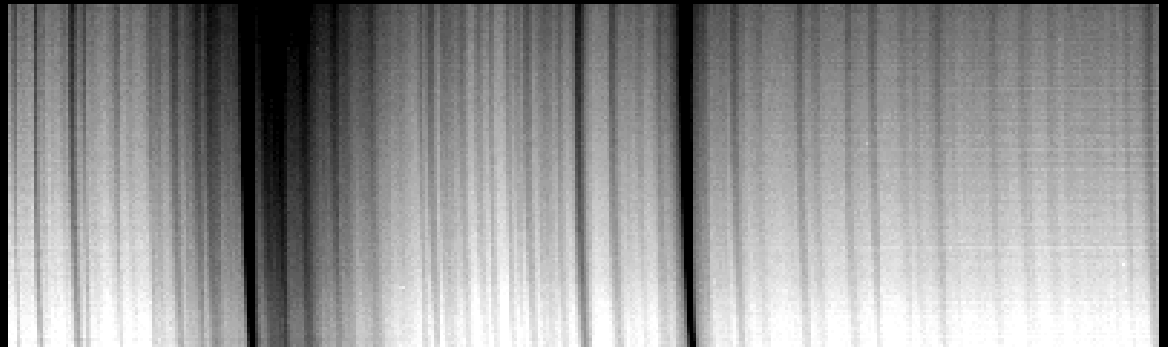
correções multiplicativas:

flats: tela/céu iluminados: resposta pixel a pixel do ccd

flats cupula + flats céu

resposta da tela pode ser diferente do céu

diferença na
iluminação entre
flats do céu e da
cupula

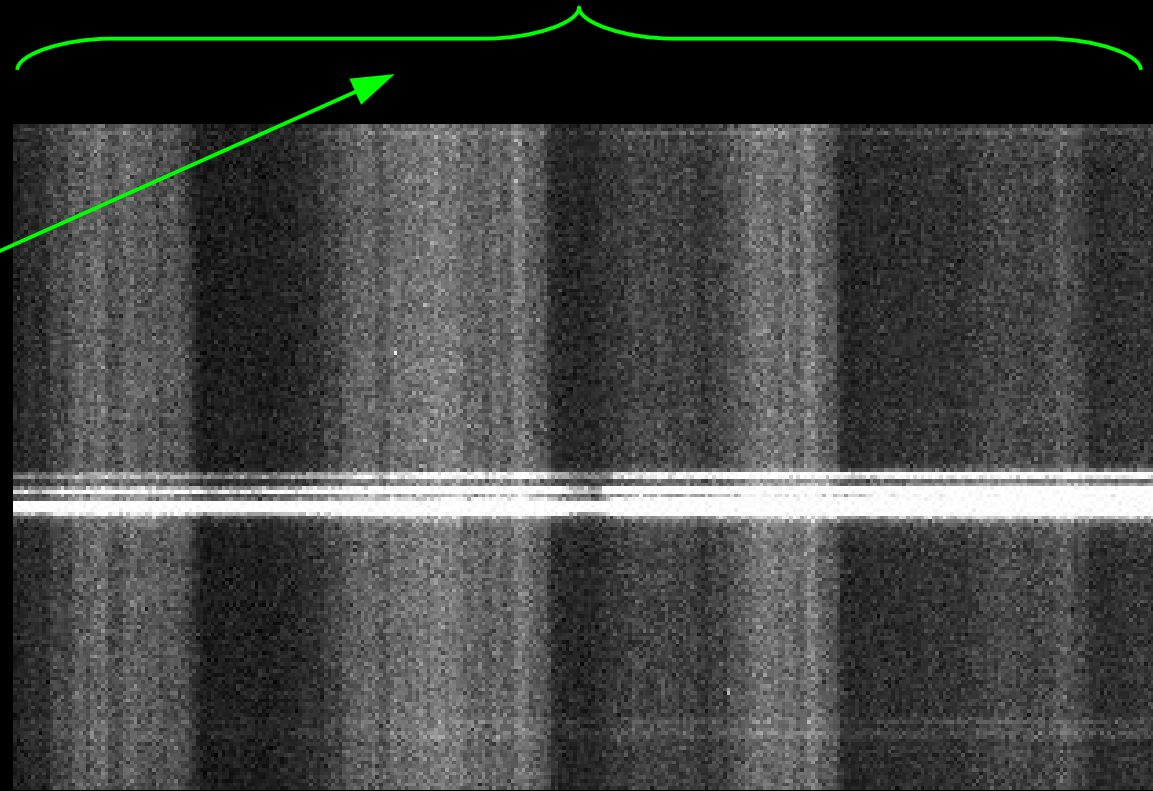


flat final aplicado nos
objetos

extração dos espectros:

temos uma imagem
bidimensional:

- direção espectral
- direção espacial



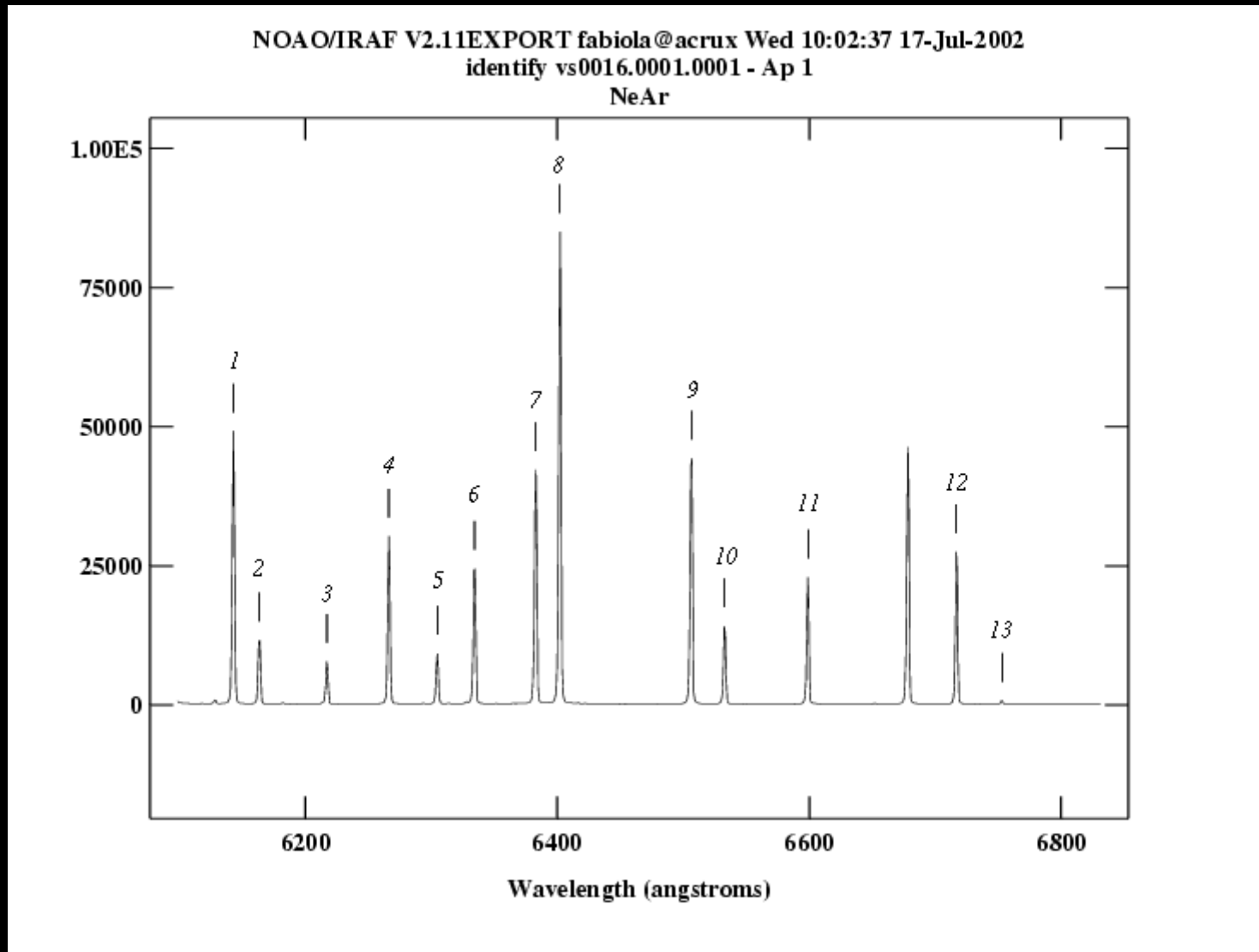
seguimos a imagem da fenda, somando ao longo da direção espacial
aonde temos estrela

- fazemos o mesmo para o céu próximo a estrela. Subtraímos a
componente de céu da estrela

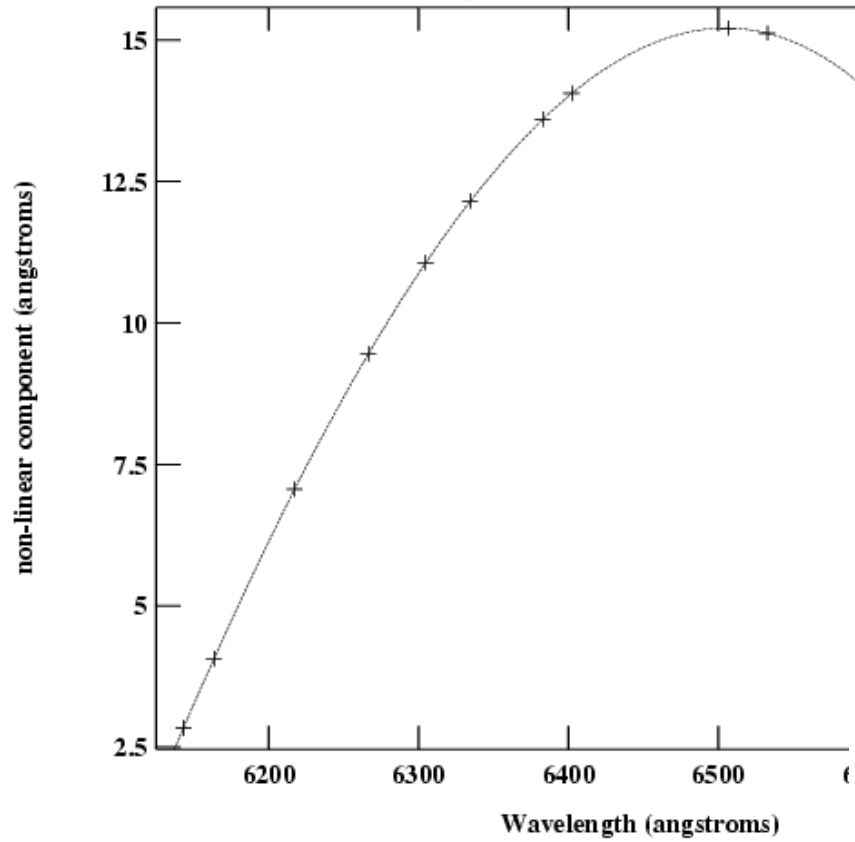
calibração em comprimento de onda:

utilizamos lâmpada de comparação:

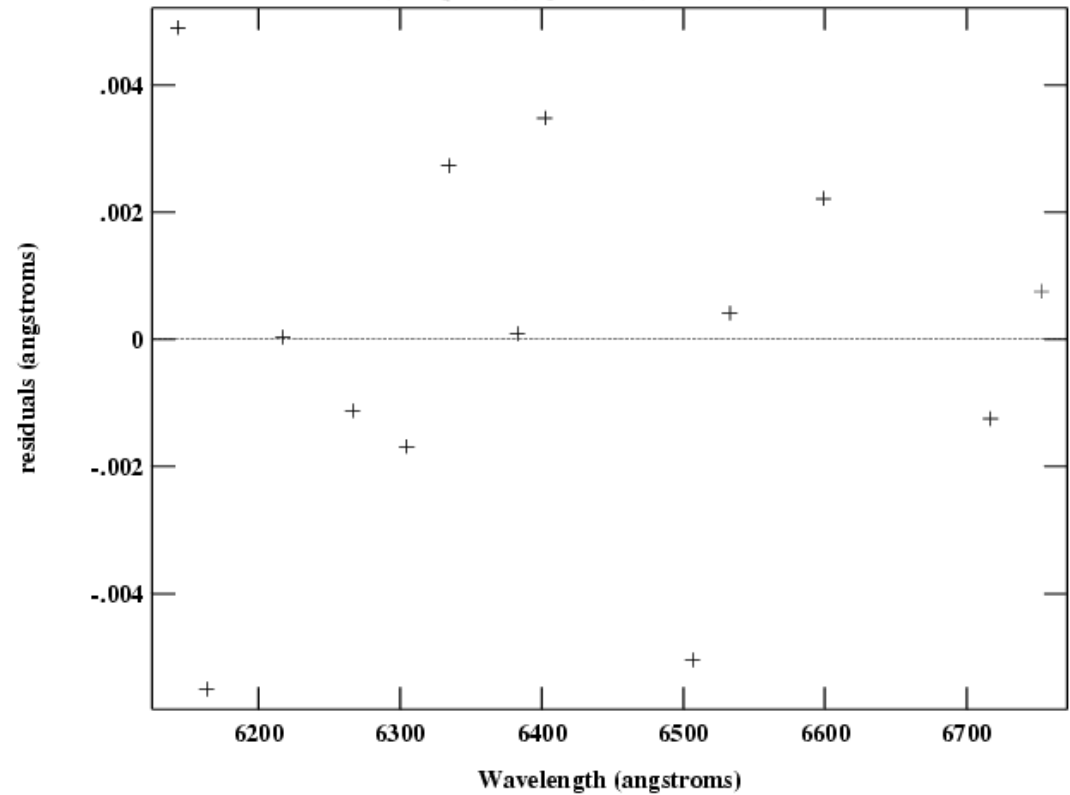
posição no ccd x comprimento de onda de laboratório



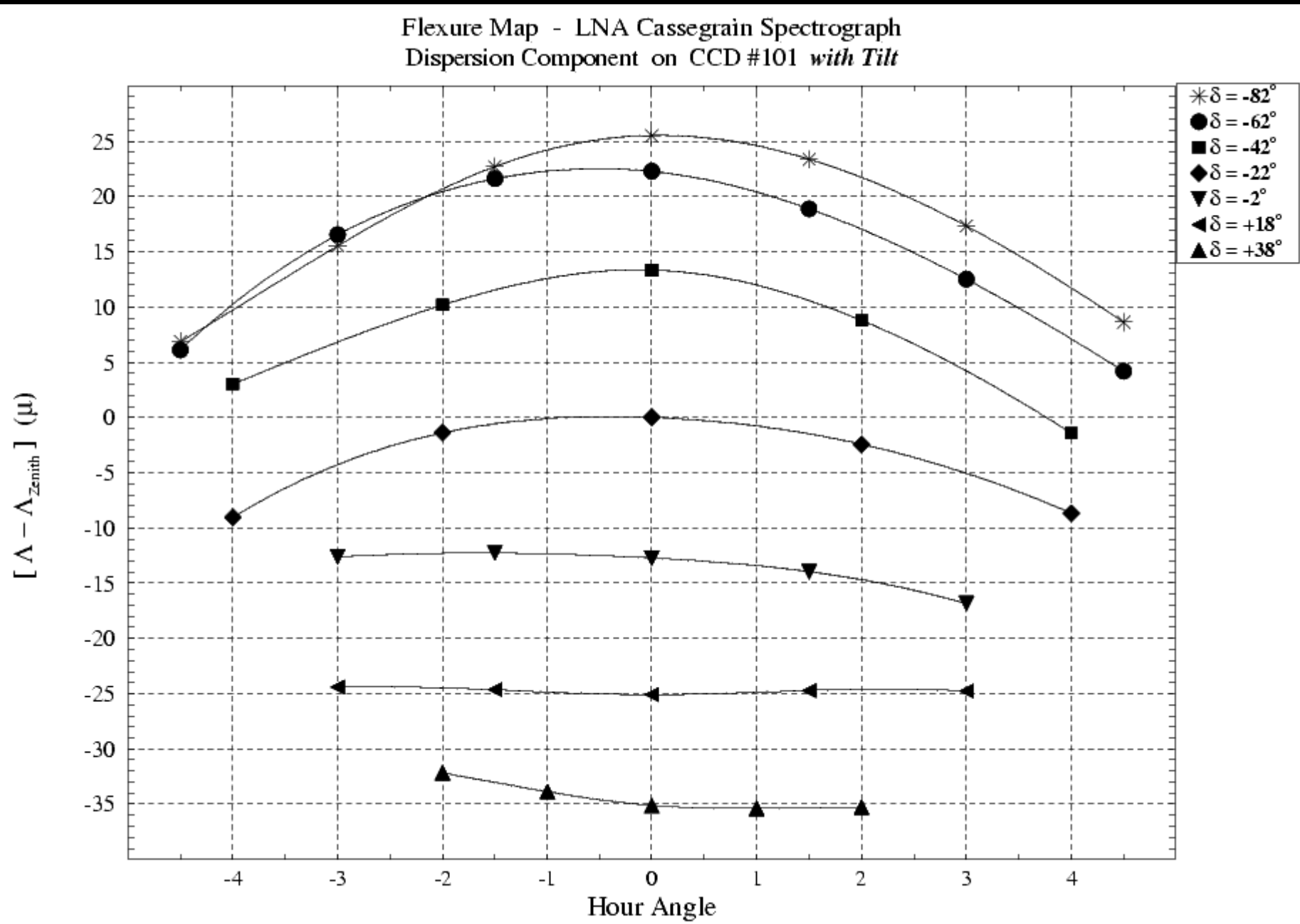
NOAO/IRAF V2.11EXPORT fabiola@acrux Fri 15:16:15 12-Jul-2002
func=legendre, order=4, low_rej=3, high_rej=3, niterate=0, grow=0
total=13, sample=13, rejected=0, deleted=0, RMS=0.00292



NOAO/IRAF V2.11EXPORT fabiola@acrux Fri 15:16:04 12-Jul-2002
func=legendre, order=4, low_rej=3, high_rej=3, niterate=0, grow=0
total=13, sample=13, rejected=0, deleted=0, RMS=0.00292



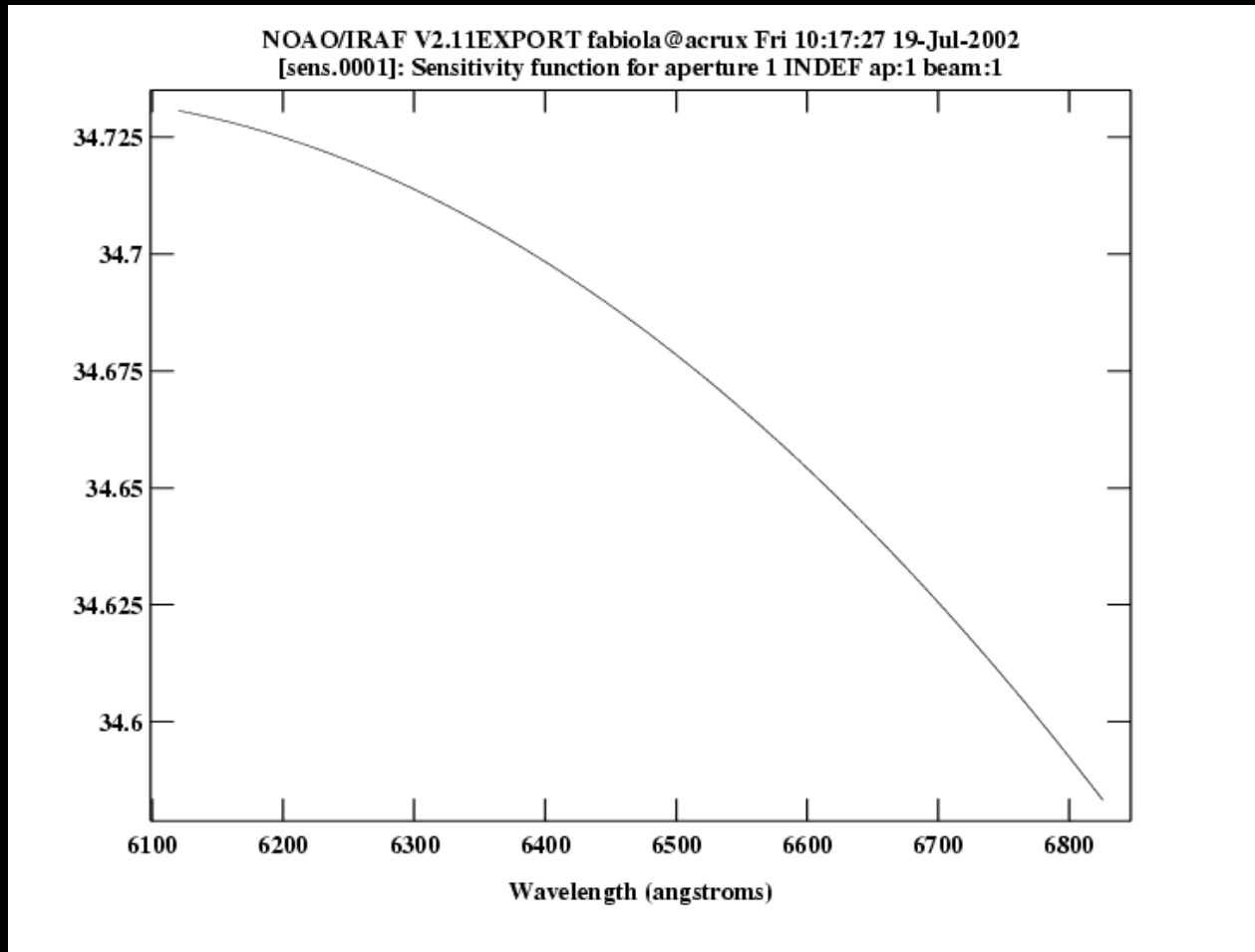
intervalo entre as lâmpadas: flexão do telescópio



calibração em fluxo:

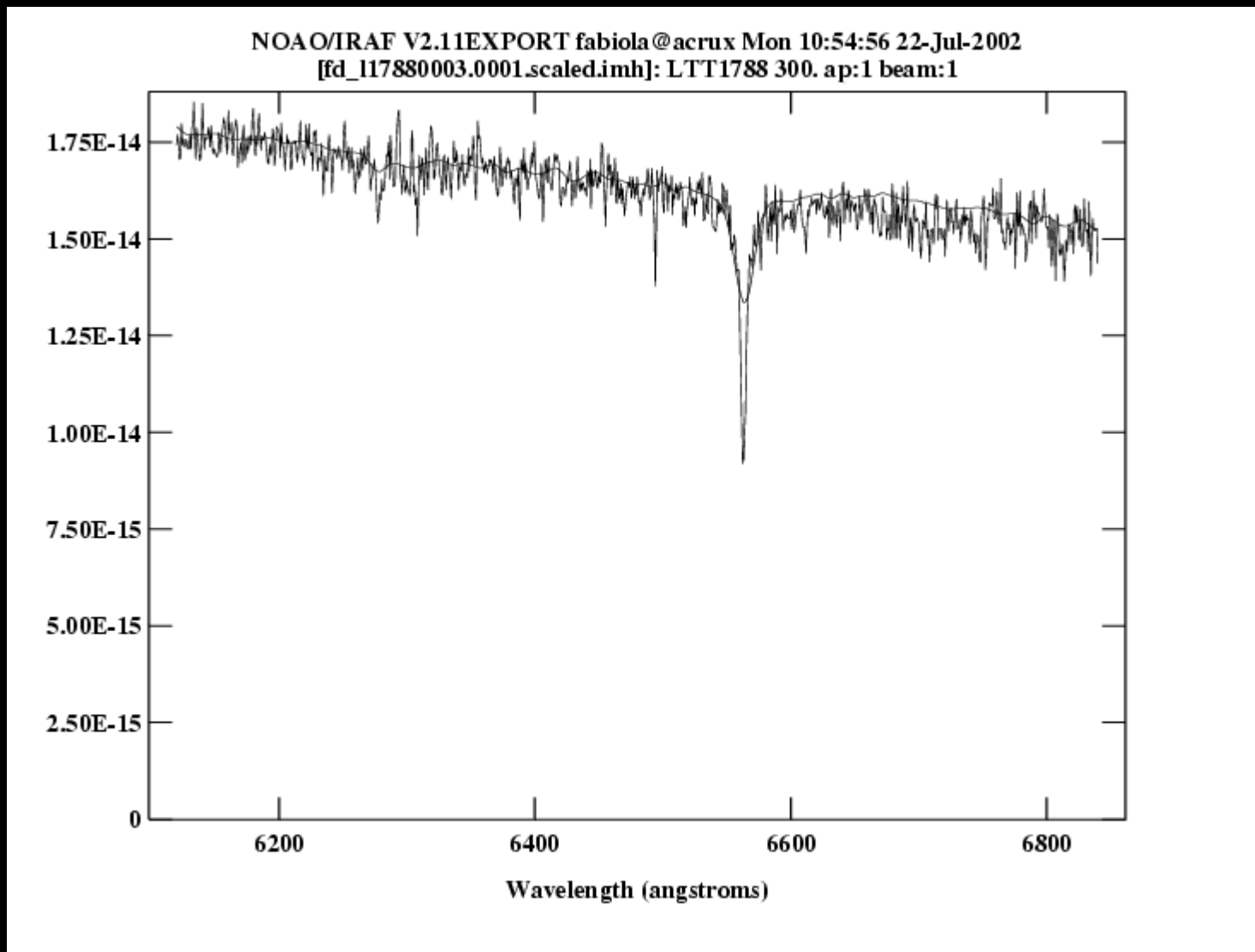
observamos padrões espectrofotométricas: fluxo já tabelado

relacionamos fluxo observado na banda com fluxo da calibração, construindo uma função de sensibilidade



se temos medidas em diversas massas de ar podemos calcular uma curva de extinção para o local, senão usamos uma tabelada

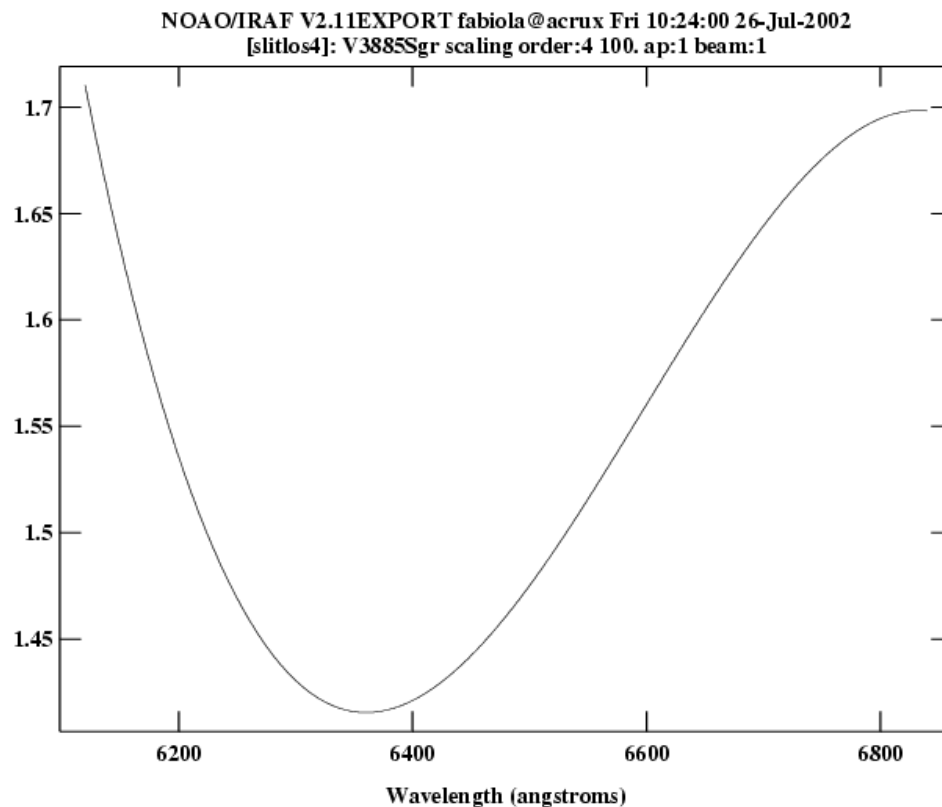
para verificar calibração em fluxo, calibramos uma padrão observada e comparamos com espectro de calibração



correção de perdas de luz na fenda:

para termos boa resolução espectral, fechamos a fenda até cerca de 2/3 do disco de seeing da estrela. A luz que cai sobre as lâminas da fenda é perdida

incluímos uma companheira próxima na fenda. Assim o fluxo da companheira é assumido constante, permitindo correção de passagem de nuvens, por exemplo.

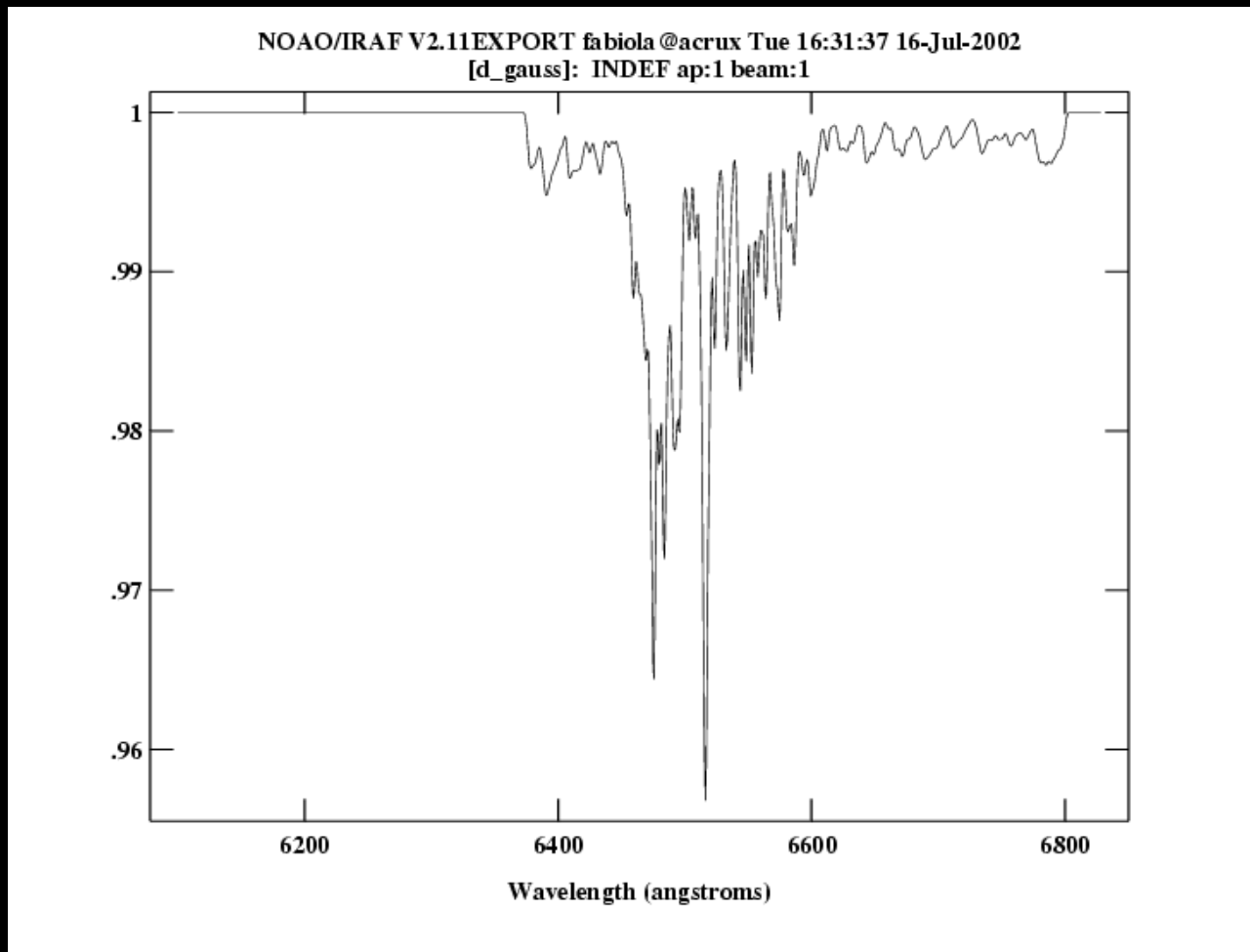


As perdas na fenda são corrigidas fazendo-se observações de fenda larga, onde toda a luz da estrela (comparação) cai na fenda. Da razão entre as imagens de fenda larga e estreita calculamos as perdas de luz na fenda

correção telúrica:

estas observações foram feitas na região de Ha, onde temos linhas da atmosfera da Terra que podem interferir no estudo dos perfis de linha.

um template destas linhas é escalonado de forma a compensar as principais características telúricas de um espectro médio.



programando no iraf - SPP

SPP = subset pre processor

similar a C ou fortran

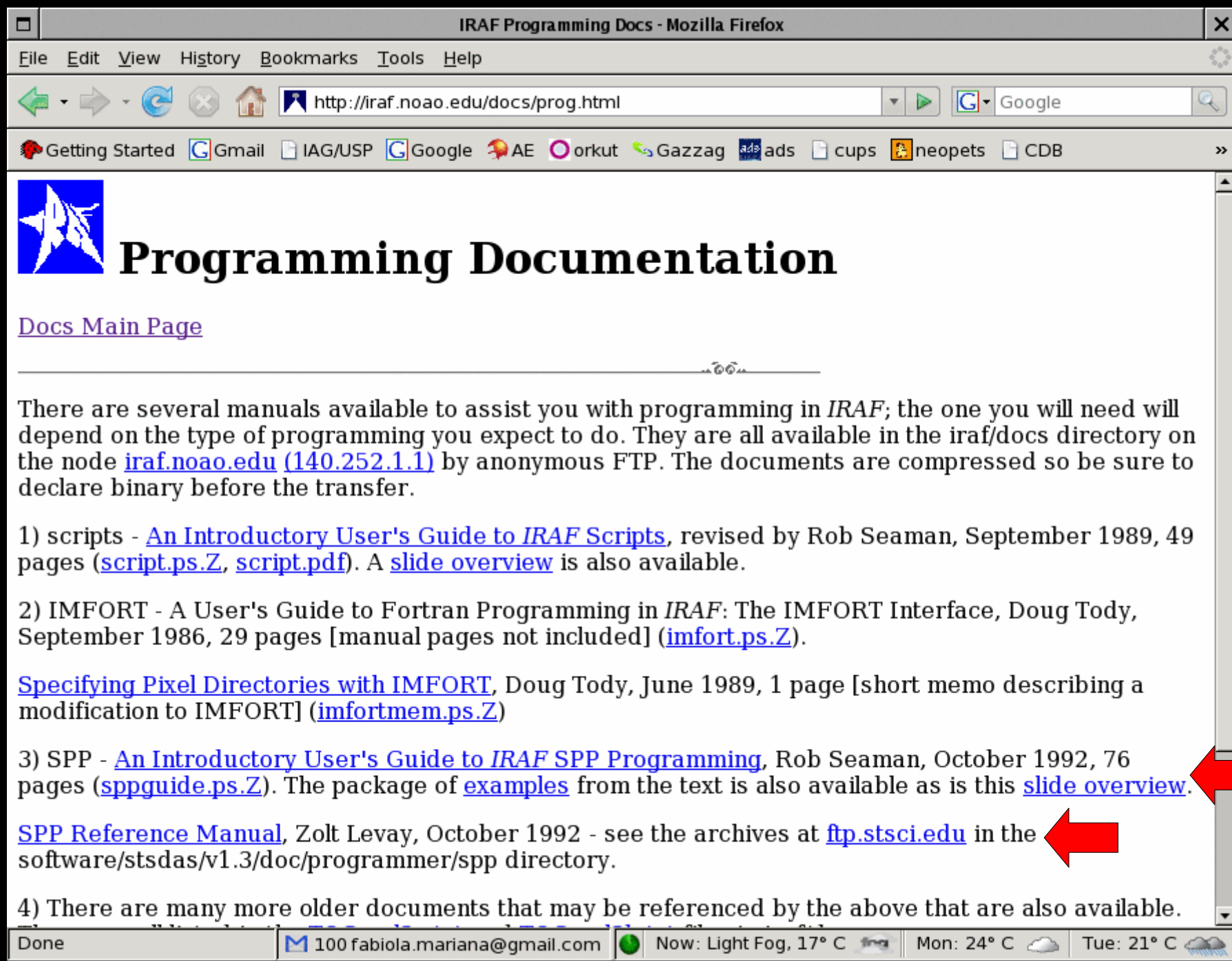
vantagens:

- portabilidade - independe do compilador
(problema fortran 90/ fortran 77)
- interação com task do iraf: não precisamos programar o básico toda vez

cuidados:

- mudança de versão do iraf: mudança nos parâmetros de um task pode trazer problemas - necessita revisão a cada versão nova
- evitar usar task quando não for totalmente necessário

manuais no site do iraf:




IRAF Programming Docs - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://iraf.noao.edu/docs/prog.html

Getting Started Gmail IAG/USP Google AE orkut Gazzag ads cups neopets CDB



Programming Documentation

[Docs Main Page](#)

There are several manuals available to assist you with programming in *IRAF*; the one you will need will depend on the type of programming you expect to do. They are all available in the iraf/docs directory on the node [iraf.noao.edu \(140.252.1.1\)](http://iraf.noao.edu) by anonymous FTP. The documents are compressed so be sure to declare binary before the transfer.

- 1) scripts - [An Introductory User's Guide to IRAF Scripts](#), revised by Rob Seaman, September 1989, 49 pages ([script.ps.Z](#), [script.pdf](#)). A [slide overview](#) is also available.
- 2) IMFORT - A User's Guide to Fortran Programming in *IRAF*: The IMFORT Interface, Doug Tody, September 1986, 29 pages [manual pages not included] ([imfort.ps.Z](#)).

[Specifying Pixel Directories with IMFORT](#), Doug Tody, June 1989, 1 page [short memo describing a modification to IMFORT] ([imfortmem.ps.Z](#))

- 3) SPP - [An Introductory User's Guide to IRAF SPP Programming](#), Rob Seaman, October 1992, 76 pages ([sppguide.ps.Z](#)). The package of [examples](#) from the text is also available as is this [slide overview](#).

[SPP Reference Manual](#), Zolt Levay, October 1992 - see the archives at [ftp.stsci.edu](ftp://ftp.stsci.edu) in the software/stsdas/v1.3/doc/programmer/spp directory.

- 4) There are many more older documents that may be referenced by the above that are also available.

Done | 100 fabiola.mariana@gmail.com | Now: Light Fog, 17° C | Mon: 24° C | Tue: 21° C

exemplo 2:
seqüência de fibonnaci

```
xterm
# FIBONNACI -- print the first N Fibonacci numbers.
# task fibonnaci = t_fibonnaci
include <mach,h>
define MAX_TERMS      50
procedure t_fibonnaci ()
int      nterms, fib, farray[MAX_TERMS], n
double  dfib, phi
int      clgeti()
begin
    nterms = min (clgeti ("nterms"), MAX_TERMS)
    phi = (1 + sqrt (5.d0)) / 2
    call printf (" N\t Algebraic\tSequence\n")
    do n = 1, nterms {
        dfib = phi ** n / sqrt (5.d0)
        if (dfib > MAX_INT)
            break
        fib = nint (dfib)
        if (n <= 2)
            farray[n] = 1
        else
            farray[n] = farray[n-1] + farray[n-2]
        call printf ("%2d\t%10d\t%d\n")
            call pargi (n)
            call pargi (fib)
            call pargi (farray[n])
    }
end
~
~
```


FIM