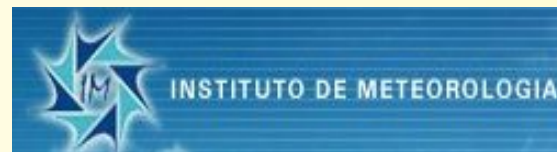


# PAIPIX@



:

# From Desktop to Data Servers

<http://www.paipix.org>

- Old PAIPIX Live - “One of those Knoppix things”
  - present usage at IM and the plan
  - infrastructure at IM
- Updated Requirements and Developments
- New hardware systems at IM
  
- Present PAIPIX Installer/Live
  - Debian distribution
  - Debian installer and live
  - PAIPIX packages and repositories
  - The support for the meteorology tools
  
- Conclusions



# What *was* PAIPIX?



Started as live Linux for scientific appl.:  
in 2004 - “one of those Knoppix like stuff”

- End 2004 – Complete system en,pt,es,fr,de,it  
version 3.7 - 2 GB live image used until today at IM  
...
- End 2005 – Version 5 to support *update* of the  
installed system changed to be built from “Kanotix”  
...
- 2006 – Transition version 6.

## Shortcomings:

- Debian based but packed by a **very small community**
- The **installer** was a bit unstable (application specific)
- PAIPIX was “remastered” - depended on initial image

# Some evaluation of "old" PAIPIX

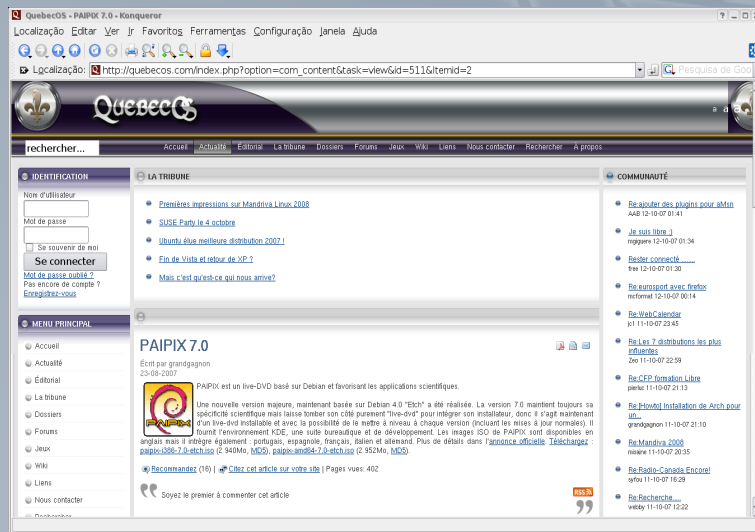


news 20.06.2005

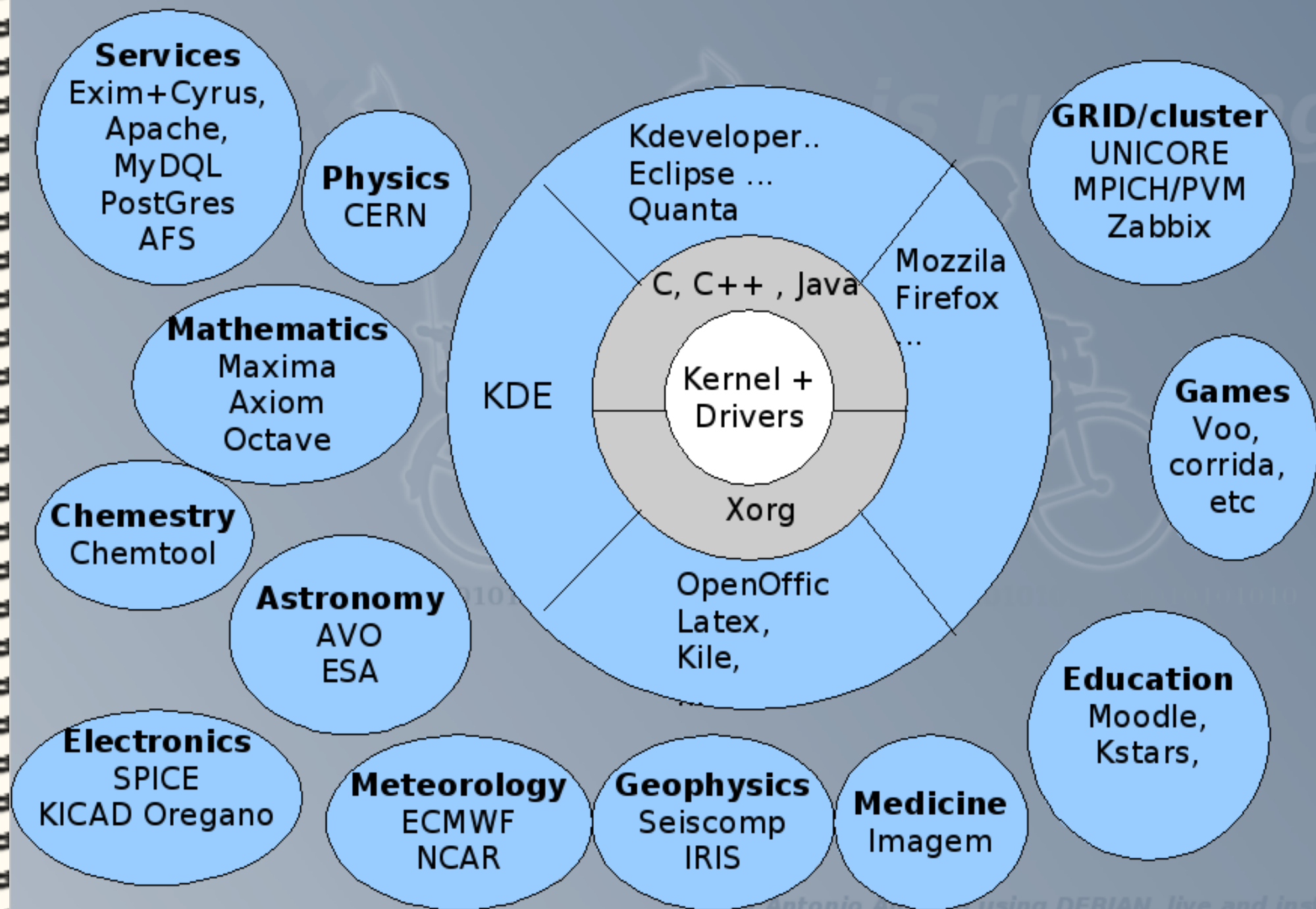
<http://www.heise.de/english/newsticker/news/60800>

“Moreover, in Version 4.0 a number of expansions have been integrated that have flowed back to Knoppix from the Knoppix-based distributions Kanotix, Quantian, Paipix and Freeduc. With, for example, the Kanotix hardware support for ISDN and DSL adapters from AVM, an improved hard disk installer, scientific software from Quantian and Paipix and learning software for children from Freeduc among them.”

<http://distrowatch.com/index.php?distribution=paipix>  
[http://quebecos.com/index.php?option=com\\_content&task=view&id=511&Itemid=2](http://quebecos.com/index.php?option=com_content&task=view&id=511&Itemid=2)



# The main PAIPIX components



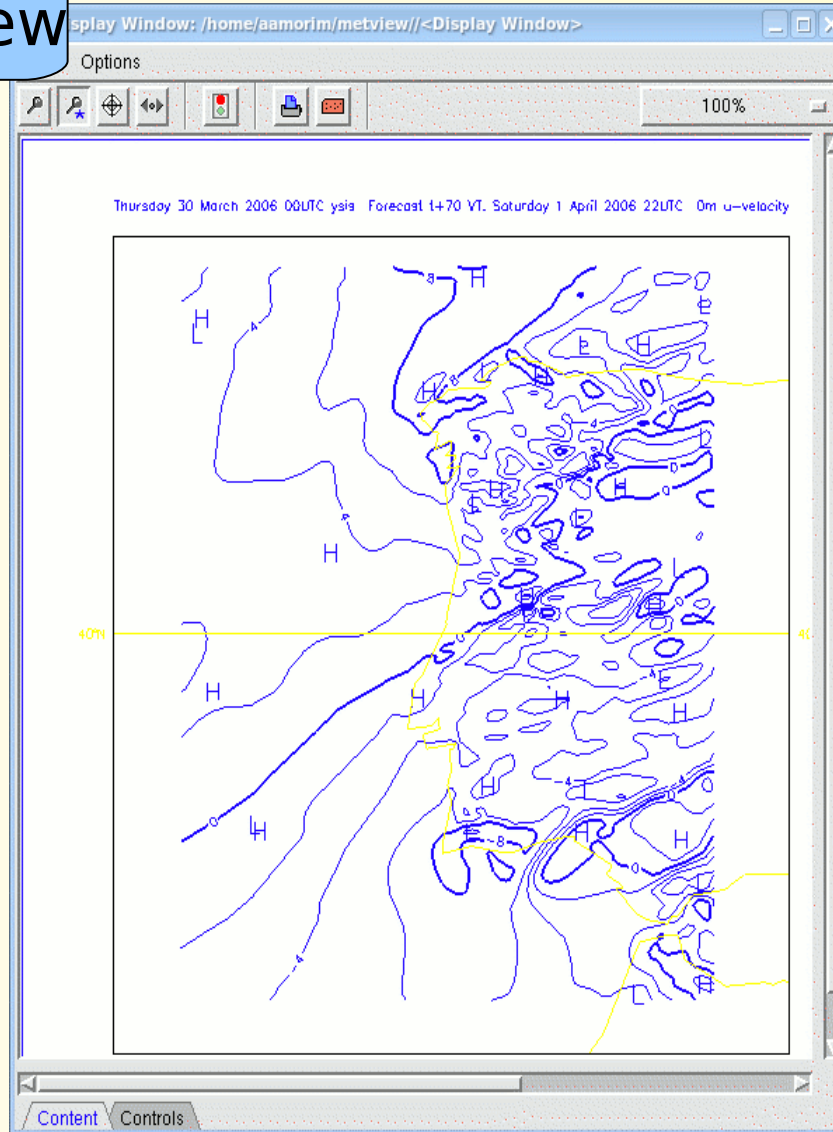


# Meteo. Packages TIDB/ ECMWF



Metview

The image shows two screenshots of the Metview software interface. The top screenshot is the 'Metview 3.7.1-export Dev' window, displaying a desktop environment with icons for 'News', 'What's new', 'Play with me', and 'Generic Data Access'. The bottom screenshot is the 'Metview Generic Data Access' dialog box, showing configuration options for data access. The 'Type' is set to 'Grib', 'Tidbufl' is 'mysql://localhost:grib.root:PASSWORD', 'Model' is 'ECMWF', 'Date1' is '2005-04-11/12:00', 'Date2' is '2005-04-12/14:40', and 'Where' is 'ParamID=135 and level=250'. The 'Content' tab is selected at the bottom.

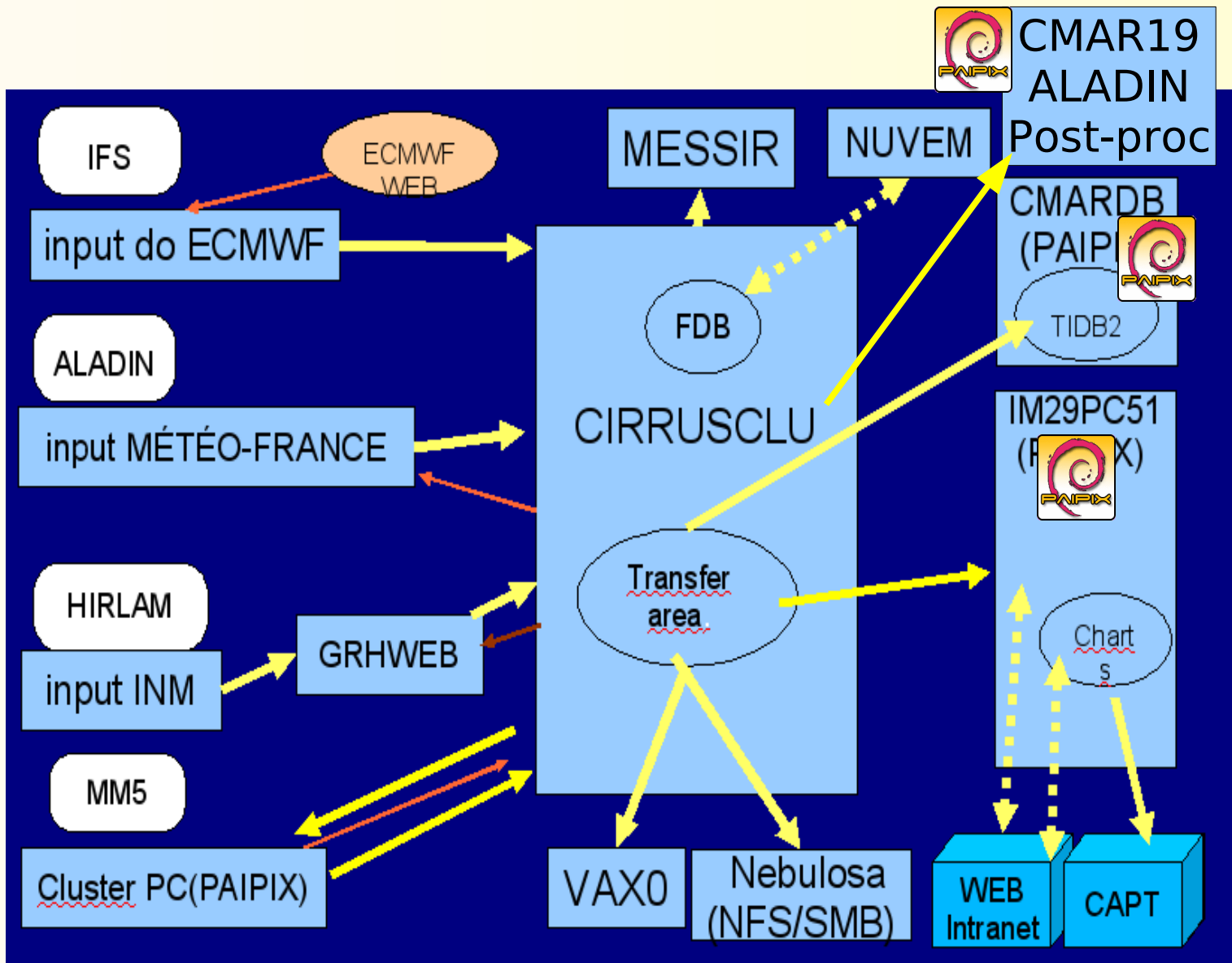


A screenshot of the 'XCdp' application window. The window title is 'XCdp' and it has a menu bar with 'File', 'Edit', 'Show', 'Servers', 'Windows', and 'Help'. The main area shows 'localhost' highlighted in pink. A blue callout bubble points to 'localhost' with the text 'SMS client/server'.

A screenshot of the 'KondBExplorer' application window. The window title is 'KondBExplorer' and it has a menu bar with 'File', 'Edit', 'Window', and 'Help'. The main area displays a tree view of data sources and a table of data. A blue callout bubble points to the table with the text 'TIDB ktidbexplorer'.

Name	Since	Till	Para	Ti	Tab	Level	Typ	Level	La	Lon	LatM	LonM	LonM	GribObj
local	2005-10-15 07:00:00	2005-10-15 07:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
ampbuf2	2005-10-15 13:00:00	2005-10-15 13:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
buf2new	2005-10-15 19:00:00	2005-10-15 19:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
ampbufs	2005-10-16 01:00:00	2005-10-16 01:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
buf2	2005-10-16 07:00:00	2005-10-16 07:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
grib	2005-10-16 13:00:00	2005-10-16 13:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
local	2005-10-16 19:00:00	2005-10-16 19:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
mysql	2005-10-16 25:00:00	2005-10-16 25:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
180.180.7.7	2005-10-17 01:00:00	2005-10-17 01:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
21	2005-10-17 07:00:00	2005-10-17 07:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
22	2005-10-17 13:00:00	2005-10-17 13:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
23	2005-10-17 19:00:00	2005-10-17 19:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
24	2005-10-17 25:00:00	2005-10-17 25:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
25	2005-10-18 01:00:00	2005-10-18 01:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
localhost	2005-10-18 07:00:00	2005-10-18 07:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
vgndb	2005-10-18 13:00:00	2005-10-18 13:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
afdb	2005-10-18 19:00:00	2005-10-18 19:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
ECMWF	2005-10-18 25:00:00	2005-10-18 25:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
afdbz	2005-10-19 01:00:00	2005-10-19 01:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
40	2005-10-19 07:00:00	2005-10-19 07:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
41	2005-10-19 13:00:00	2005-10-19 13:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
42	2005-10-19 19:00:00	2005-10-19 19:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
43	2005-10-20 01:00:00	2005-10-20 01:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
44	2005-10-20 07:00:00	2005-10-20 07:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT
45	2005-10-20 13:00:00	2005-10-20 13:00:00	130	0	128	100	1000.0	-1	1	75	15	-85	30	<G-RIB DAT

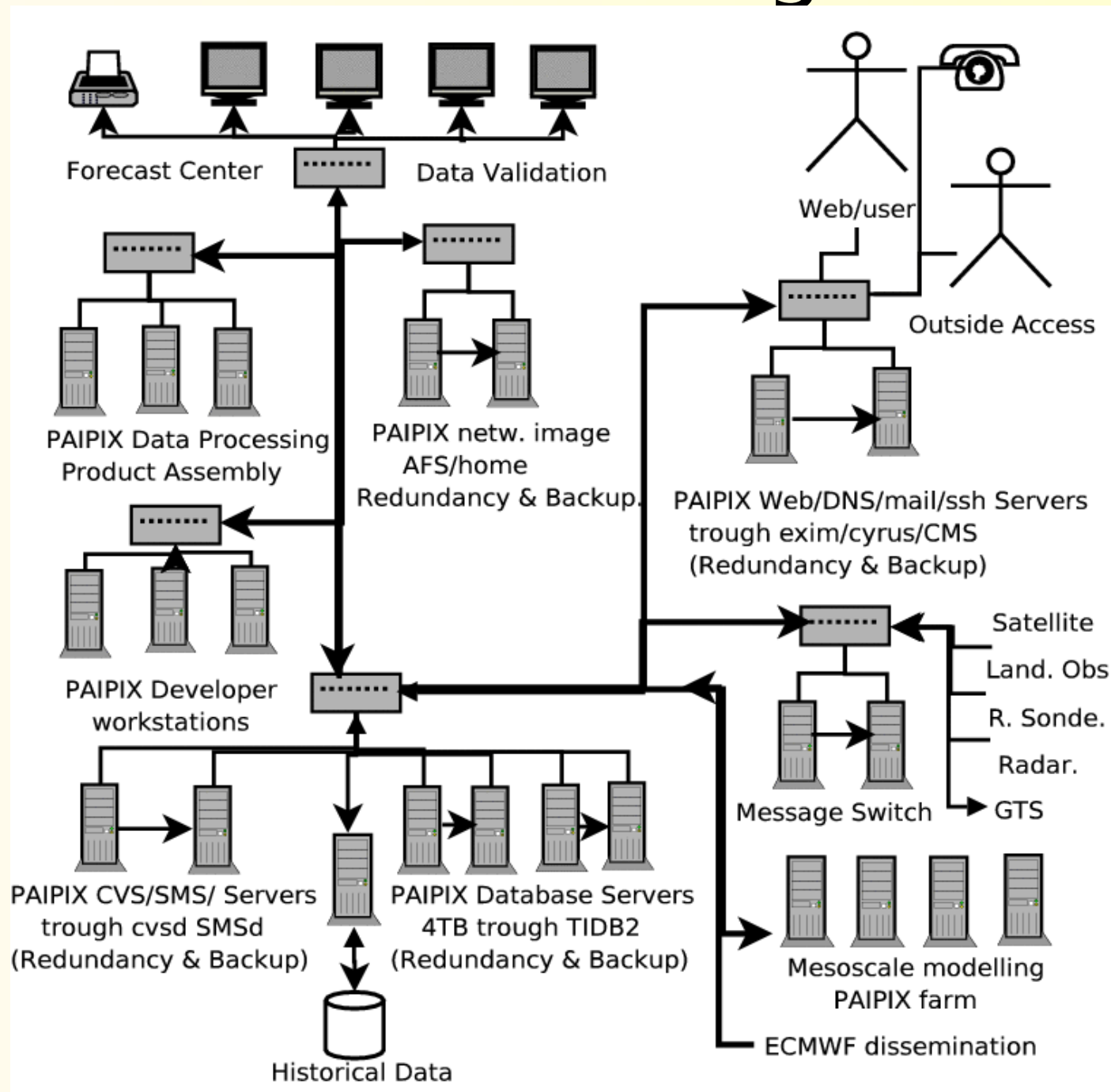
# IM: Complex, Heterogeneous



# The present usage at IM:

- All new operational forecast plots
- ALADIN model post-processing
- TIDB2 Database with:
  - observations
  - model data
- Database client API
- Database browsing tool
- SMS - cdp/Xcdp clients
- Code development:
  - ECMWF libraries
  - C++, C and Fortran90 compilers
- Model installation tests for ALADIN, ALARO, AROME

# What could be envisaged in 2005





# The new IM systems - 2007

12 DELL servers  
(8 cores + 8 TB Disk)



IBM System p5  
10 x16 CPUs



Similar at the Univ. Lisboa

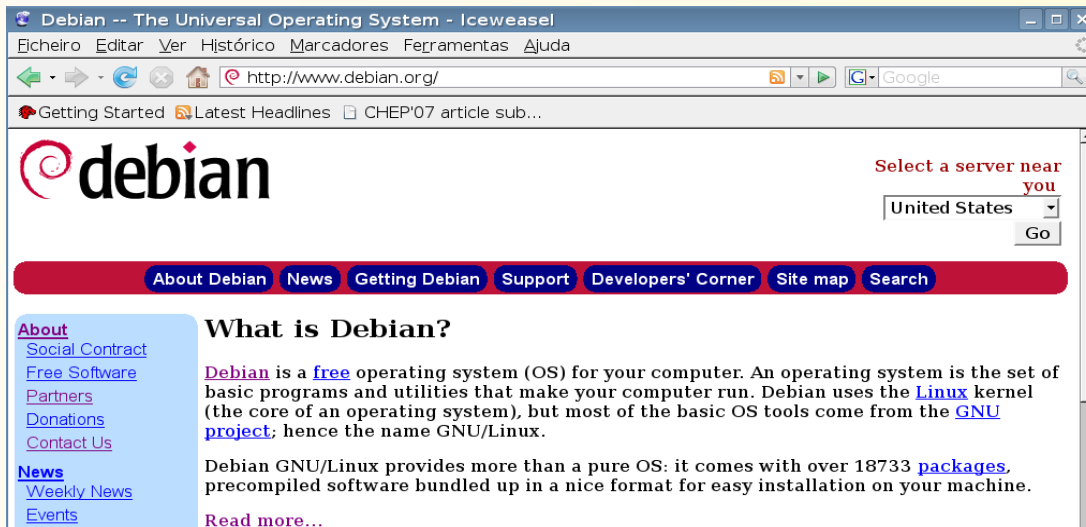
# PAIPIX for data processing servers

- Directly built from a major Linux distribution
- Include “official” disk installer
- Be upgradeable at any level for any package
- Support the AMD64/Intel E2 64 bit architectures
- Built around the “official” kernel

But maintain:

- Automatic installation
- Live running for testing and evaluation with the installation of new packages in live mode.
- Include meteo applications plus HW/SW monitoring

# What is Debian



## Installing with the Debian-Installer

For official Debian 4.0r1 installation media and information, see [the etch page](#).

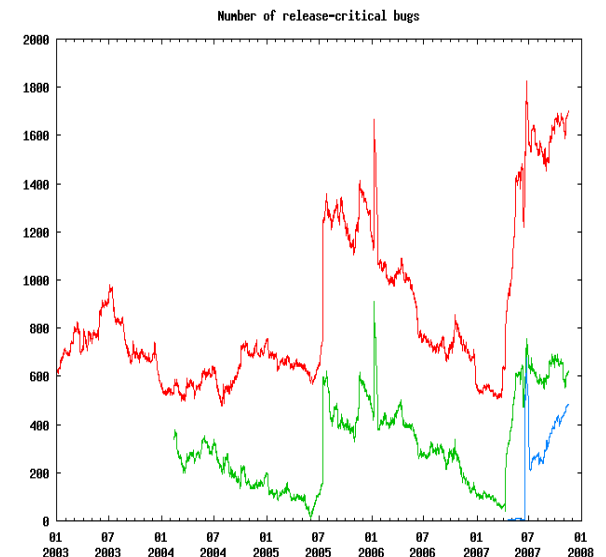
If you'd like something newer to help us test a future release of the installer, or because of hardware problems or other issues, try one of these **daily built images** which contain the latest available version of installer components.

- netinst (generally 135-175 MB) and businesscard (generally 20-50 MB) CD images  
[[alpha](#)] [[amd64](#)] [[arm](#)] [[hppa](#)] [[i386](#)] [[ia64](#)] [[m68k](#)] [[mips](#)] [[mipsel](#)] [[powerpc](#)] [[sparc](#)]

## Release-critical bugs status

Thu Nov 15 12:01:00 UTC 2007

Total number of release-critical bugs: 1716  
Number that have a patch: 302  
Number that have a fix prepared and waiting to upload: 55  
Number that are being ignored: 105  
Number concerning the current stable release: 491  
Number concerning the next release: 630



### WELCOME

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### DEBIAN LIVE

[Download](#)

## About

A Debian Live system is a Debian operating system that does not require a classical installer to use it. It comes on various media, including CD-ROM, USB sticks, or via netboot. Why Debian Live?

Although the Debian Live project is about the framework to create your own customized Live system, we offer some prebuilt images. Currently, builds for three desktop environments (GNOME, KDE and Xfce) as well





# What PAIPIX *has become*?



- 2007 – Paipix 7

(Deb.) Installer live-DVD with:

## **LIVE:**

Starting PAIPIX in live mode, start the full KDE, Office and code development environments. The menu PAIPIX allows then to “install” in the memory disk all other applications.

## **INSTALLER:**

Starting PAIPIX in installer one has access to the full debian-installer system which was “preconfigured” with the “proper” configuration options.

## **UPDATE:**

As part of the new system, the DVD includes a debian packages repository of the type Debian-CDROM that allows update of an older system.

**Built daily from scratch for 32 and 64 bits: EN,PT,ES,FR,IT,GR**





# New IM Version

both  
32  
and  
64  
bits

The screenshot displays a Linux desktop environment with several windows:

- Metview 3.9-export Production (2007-11-09) @ debian**: A file manager window showing a directory structure with files like 'News', 'What's new', 'Play with me', and 'README I'. A sub-window for '/Play with me' shows files like 'Metview', 'T\_an+T\_fc48', 'Anal', and 'fc48'.
- Terminal (user@debian: ~ - Linha de Comandos - Konsole)**: Displays Metview logs:

```
# MSG:[16:32:47 15.11.2007] passwd:running in open mode
# MSG:[16:32:47 15.11.2007] sms:tcp transport on port 3141
# MSG:[16:32:47 15.11.2007] sms:udp transport on port 32768
# LOG:[16:32:47 15.11.2007] SMS:Running in host debian [RPC 314159/1]
# MSG:[16:32:47 15.11.2007] SMS:Currently halted
# ERR:[16:32:47 15.11.2007] SMS-NODE-READ:Couldn't open file sms.check
# ERR:[16:32:47 15.11.2007] SMS-NODE-READ: No such file or directory
# ERR:[16:32:47 15.11.2007] recover:sms.check:file read failed:
SMS> # WAR:[16:32:47 15.11.2007] checkpoint:nothing defined, ignored
```
- Vis5D 3-D Display (LAMPS.v5d)**: A 3D visualization window showing a 3D cube with a color gradient (blue to red) and a 'Friday' label.
- Display Window: /home/user/metview/Play with me/<Display Win**: A window showing a 2D meteorological map titled 'ECMWF Analysis VT:Sunday 23 February 2003 12UTC 1000hPa Temperature'.
- Vis3d Control Panel**: A control panel for the 3D display with buttons for ANIMATE, STEP, NEW V, TOP, SOUTH, TOPO, MAP, BOX, SAVE, RESTORE, and GRID.
- xcdp**: A window showing a list of servers, with 'localhost' selected.
- localhost (detached) (frozen)**: A window with a 'Zombies' tab and a message: 'Don't forget to hit <return> when you enter a value in a text field.'

The desktop environment includes a taskbar at the bottom with various application icons and a system tray showing the time as 16:37.

+ Models?

# Work in progress...

+ Unidata

Package Name	C++/Fortran	32 Bits	64 Bits	Status	Avail.
GRIBAPI	GCC/G++	native	native	Final	Free
TIDB2 0.7	GCC/G++	native	native	Final	Free
KTIDBEXPLORER	G++/GCC	native	native	Final	Free
TIDB2/GRIB	(GRIBAPI)	native	native	Final	Free
TIDB2/BUFR	BUFREX/F77	native	native	Final*	Free
libemos 3.4	GCC/GFORT.	native	in 32	Avail	Free
Metview 3.9	G++/PGF90	native	in 32	Final	IM
emoslib	GCC/PGF90	native	in 32	Final	IM
magics	GCC/PGF90	native	in 32	Final	IM
sms 4.4.5	GCC/G++	native	in 32	Final*	IM
vis5d 5.2	GCC/G++	native	native	Final	Free
grads 1.9	GCC/G++	native	native	Final	Free
SIMDAT 0.9.8	sun-java 6	native	native	Config.	Free
Magics ++	G++/GFORT	native	native	wait	Free
Diana	G++/GCC	native	?	wait	Free

# The metview package example

*in debian/control file*

Building: in bootstrap system (pbuilder)

Source: metview

Section: IM

Priority: optional

Maintainer: ECMWF

Build-Depends: debhelper, ksh, imagemagick, g++ [i386], libgl1-mesa-dev [i386], netcdf-dev [i386], libmotif-dev [i386], libgd2-xpm-dev [i386], libdb1-compat [i386], vis5d-tcl [i386], libgdbm-dev [i386], flex [i386], libnetcdf++3 [i386], libxt-dev [i386], x11proto-print-dev [i386], libglu1-mesa-dev [i386], libxmu-dev [i386], libxp-dev [i386], bison [i386], impgi [i386], libc6-dev [i386], libglw1-mesa-dev [i386], ia32-libs-paipix [amd64]

- All mesa 3D support had to be “backported” from testing
  - (depended on Lesstif)
- All openmotif + libDRM had to be backported
- For 64 bits – ia32-libs-paipix including: netcdf + GLW + ...

The system gets the packages automatically from:

deb <http://ftp.de.debian.org/debian> etch main contrib non-free

deb <http://mirror.paipix.org/debian-paipix> etch main contrib non-free

deb <http://mirror.paipix.org/debian-specific> etch main contrib non-free

this one (restricted to IM)



# Conclusions

- The present system at IM is being used for data processing and development tasks.
- The PAIPIX system has been changed, in the mean time, to fully support the data server infrastructure
- New hardware is being installed that will increase the robustness and homogeneity, allowing the new developments to arrive faster.
- With the new software and hardware in place we plan to focus more on introducing innovative applications and products.
- The Free PAIPIX will continue to incorporate all tools that will become available to support Universities.