Gisplan

Civil Commercial Imagery Evaluation Workshop

A System for Visualization, Evaluation, Analysis and Quality Simulation of Satellite Images

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Roadmap

- Marlin
  - Visualization and Evaluation
- Sailfish
  - Analysis and Simulation
- Current work

FSL2

FSL2

Data flow

Frederico Liporace, 10/25/2006

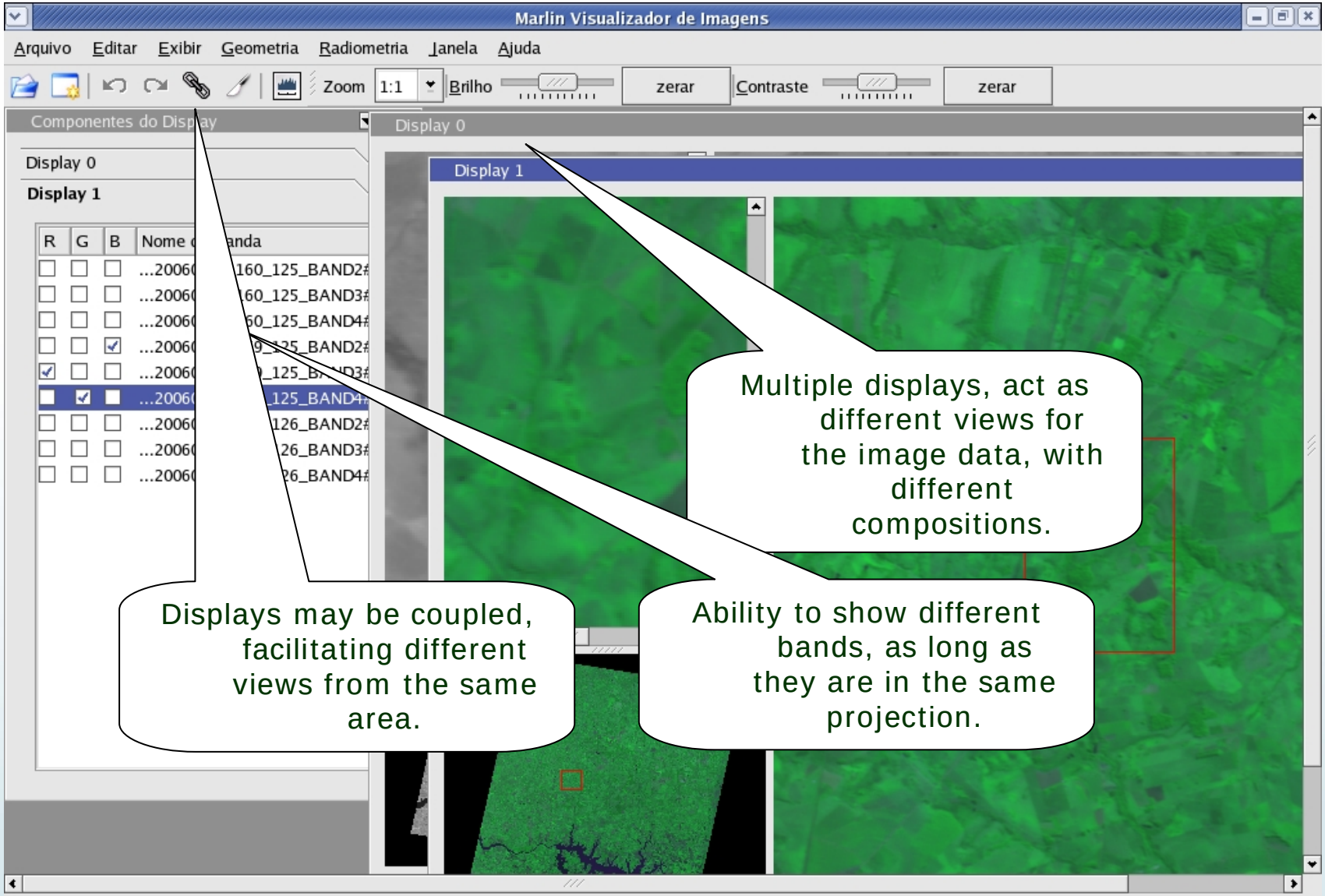
Marlin

- Implements **Visualization** and part of **Evaluation**
- Requirements by INPE, developed by Gisplan
- Lightweight visualization
  - Started as a simple CBERS visualization tool
    - Works with any georeferenced image
  - Windows and Linux versions
  - English and Portuguese
- Uses INPE's Terralib technology
  - http://www.terralib.org
  - GIS classes and functions library, available as open source
- Freeware
  - Available soon from INPE
- Base for advanced applications
  - Sailfish
  - Current work

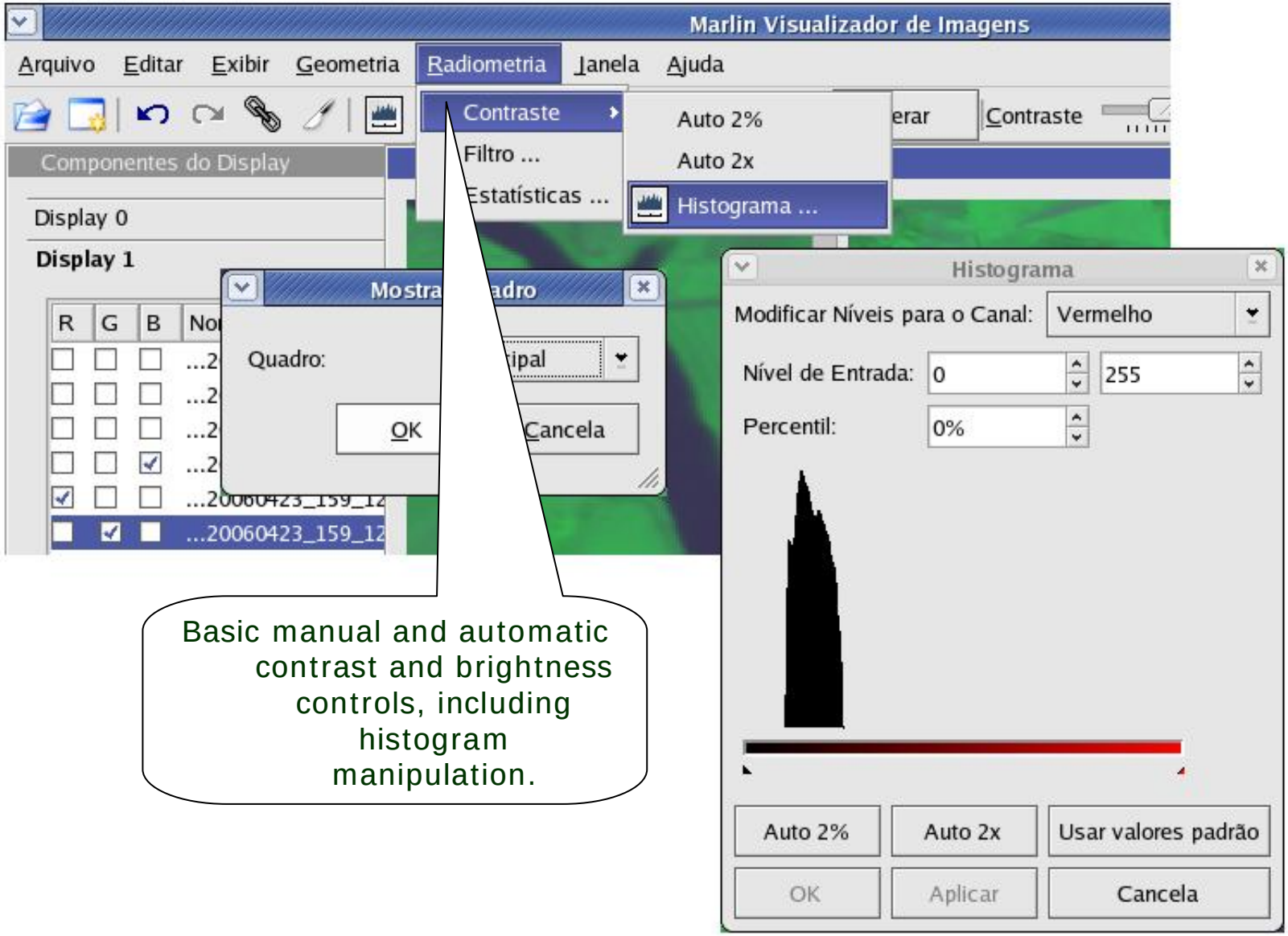
Marlin Features

- Visualization
  - Multiple displays
  - Simple mosaics
  - Display coupling
  - Histogram manipulation
  - Contrast, brightness adjustment
  - Filters
- Evaluation
  - Radiometric
    - Inter band registration
    - Band autocorrelation
  - Geometric

Marlin - Visualization

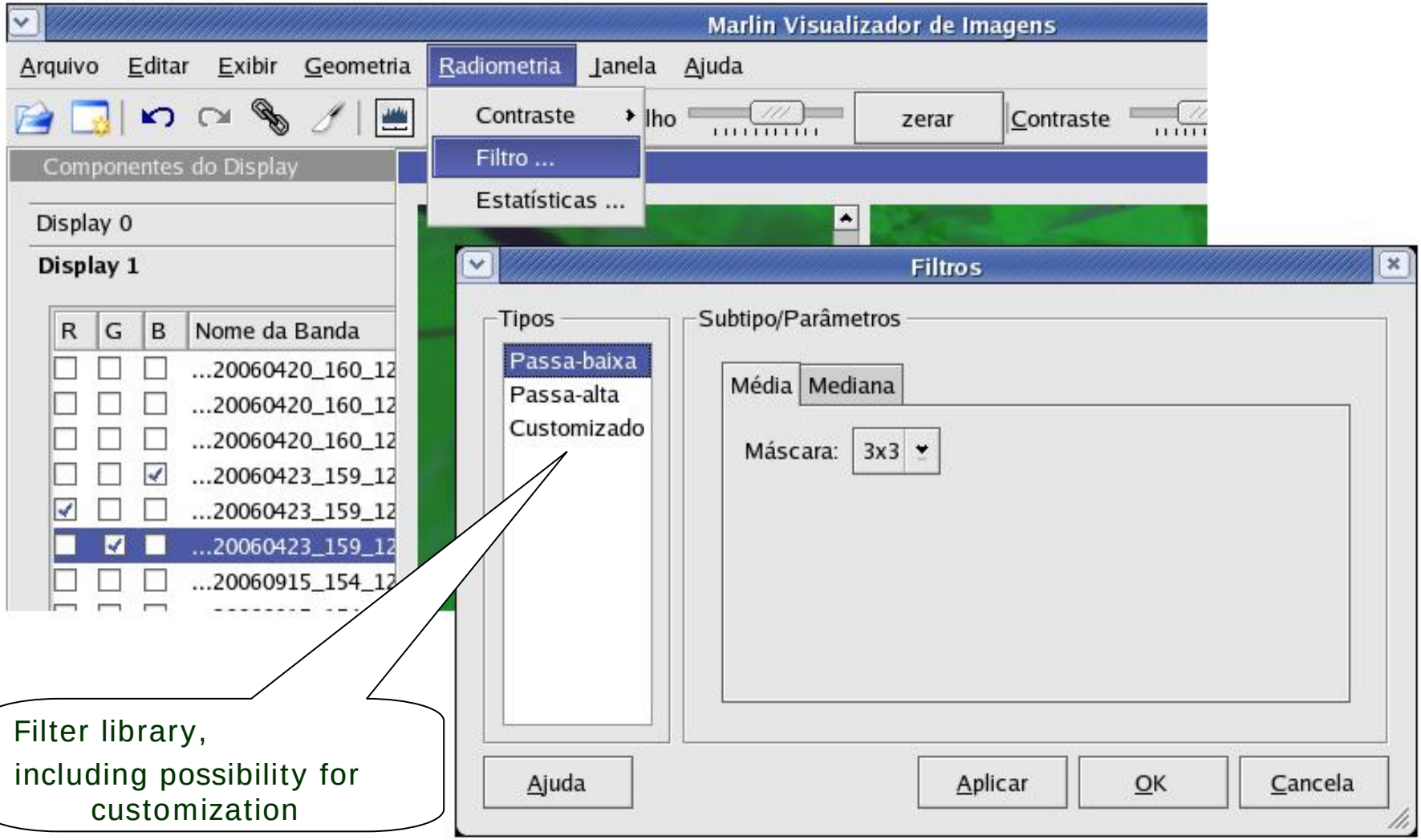


Contrast, Brightness, Histogram



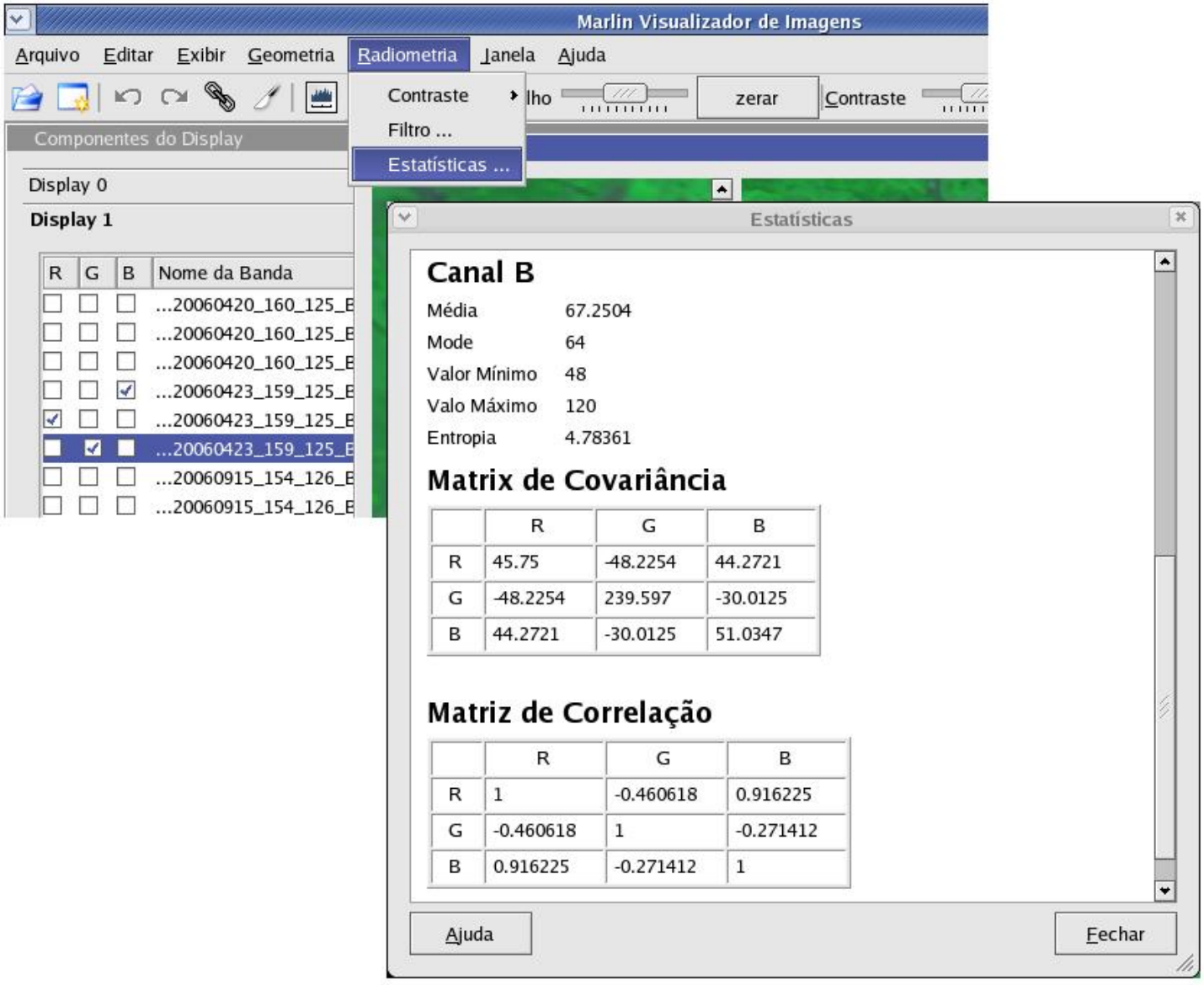
Basic manual and automatic contrast and brightness controls, including histogram manipulation.

Filters

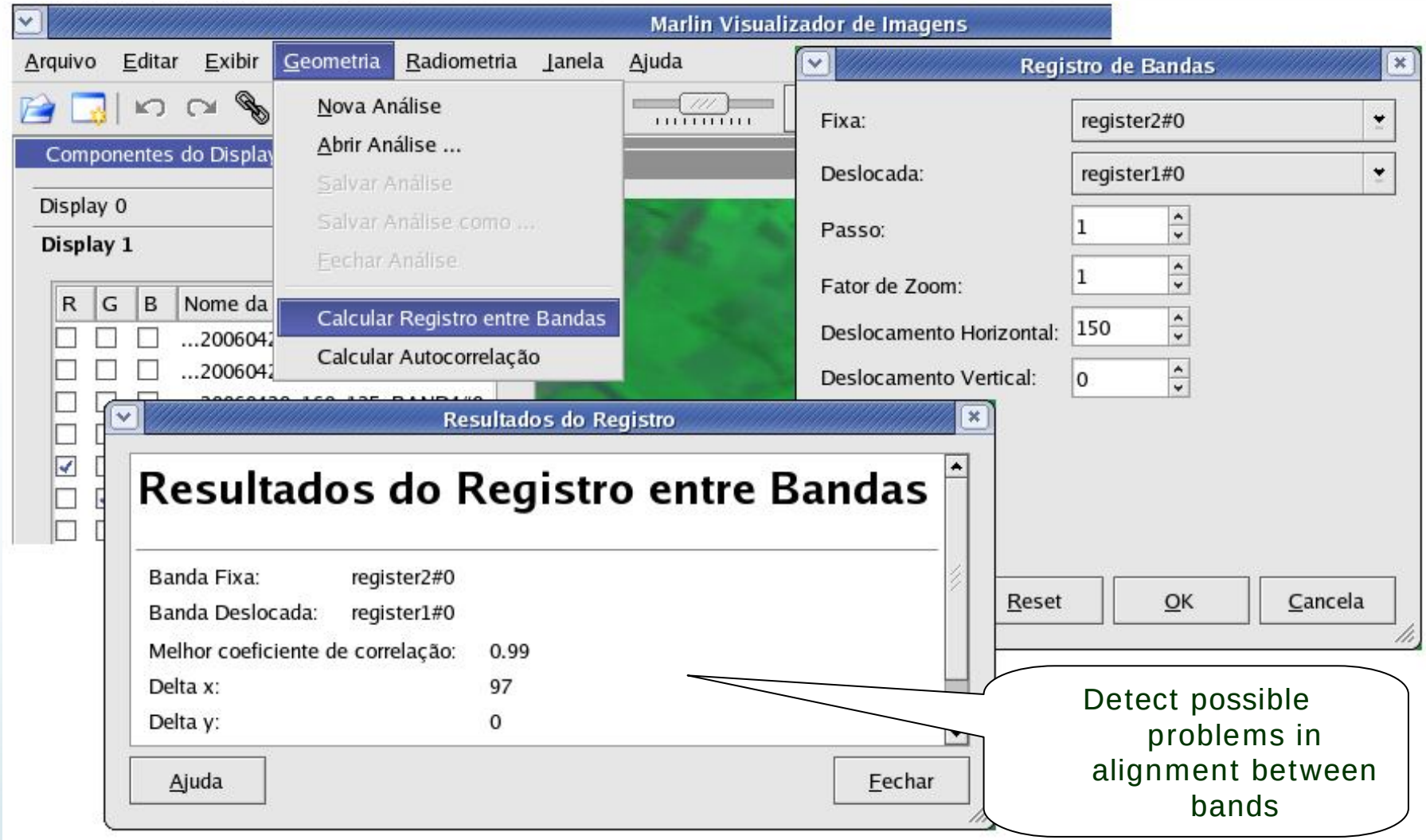


Filter library,
including possibility for
customization

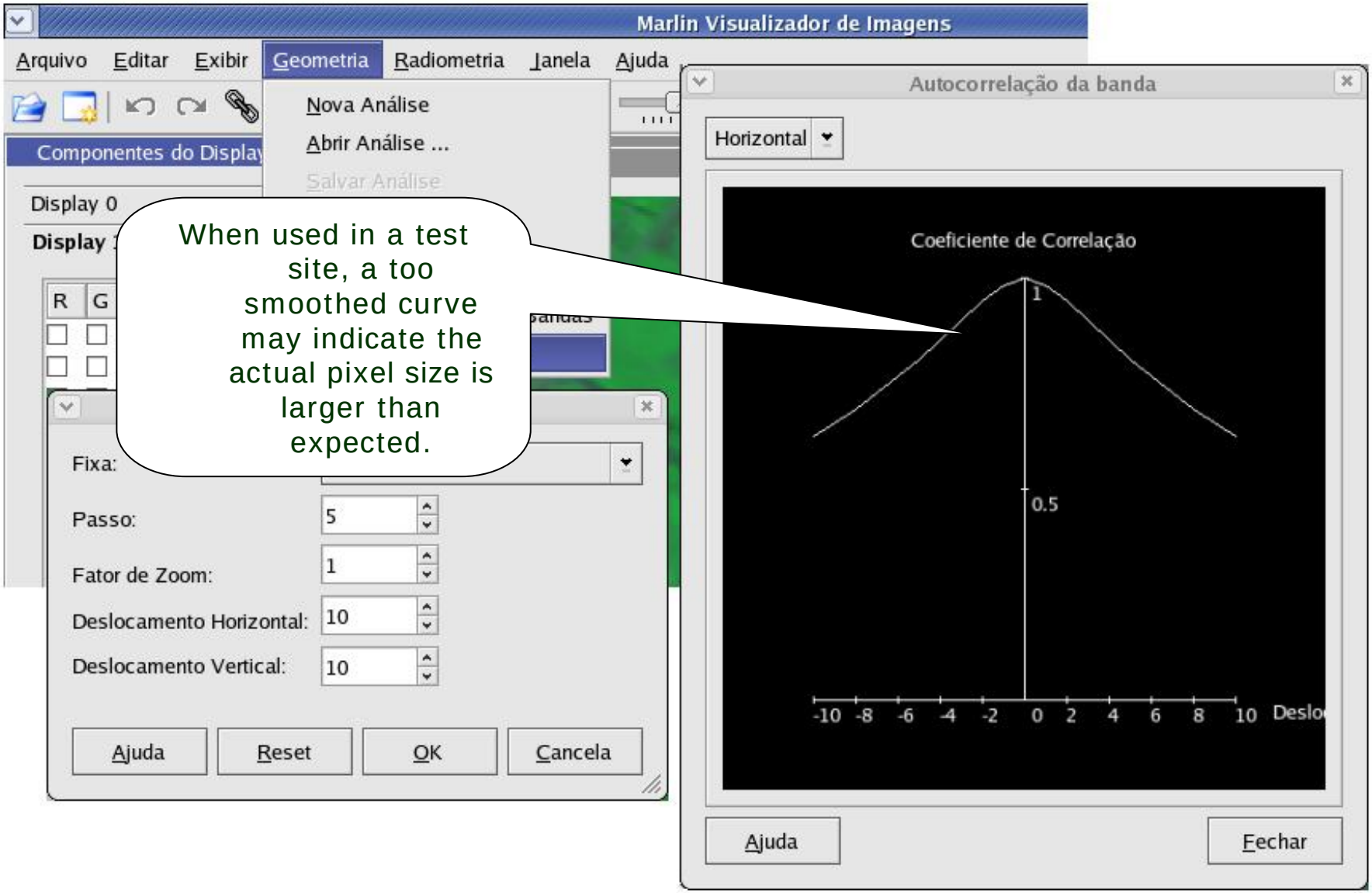
Inter Band Statistics



Inter Band Statistics

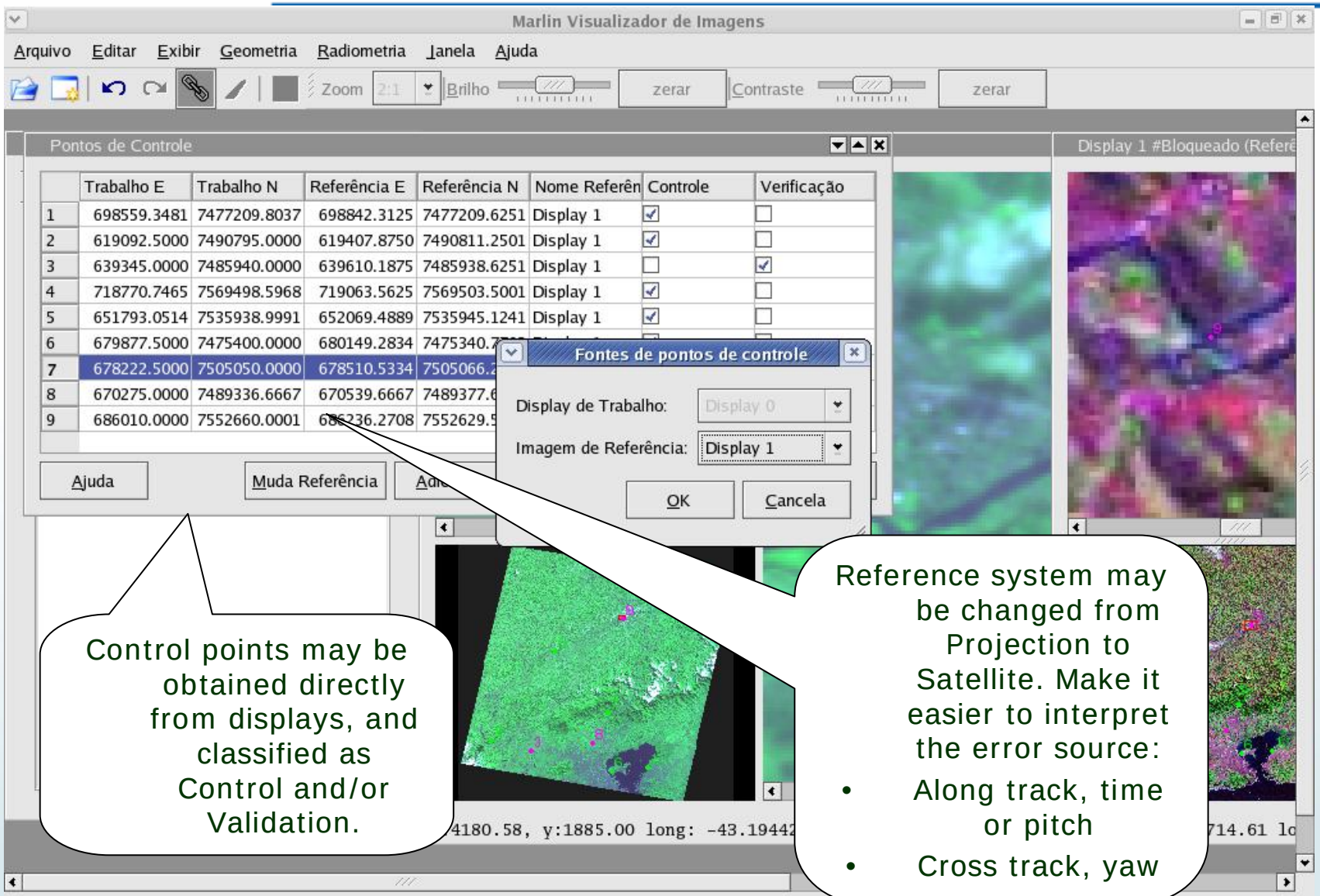


Band Auto Registration



When used in a test site, a too smoothed curve may indicate the actual pixel size is larger than expected.

Control Points Acquisition

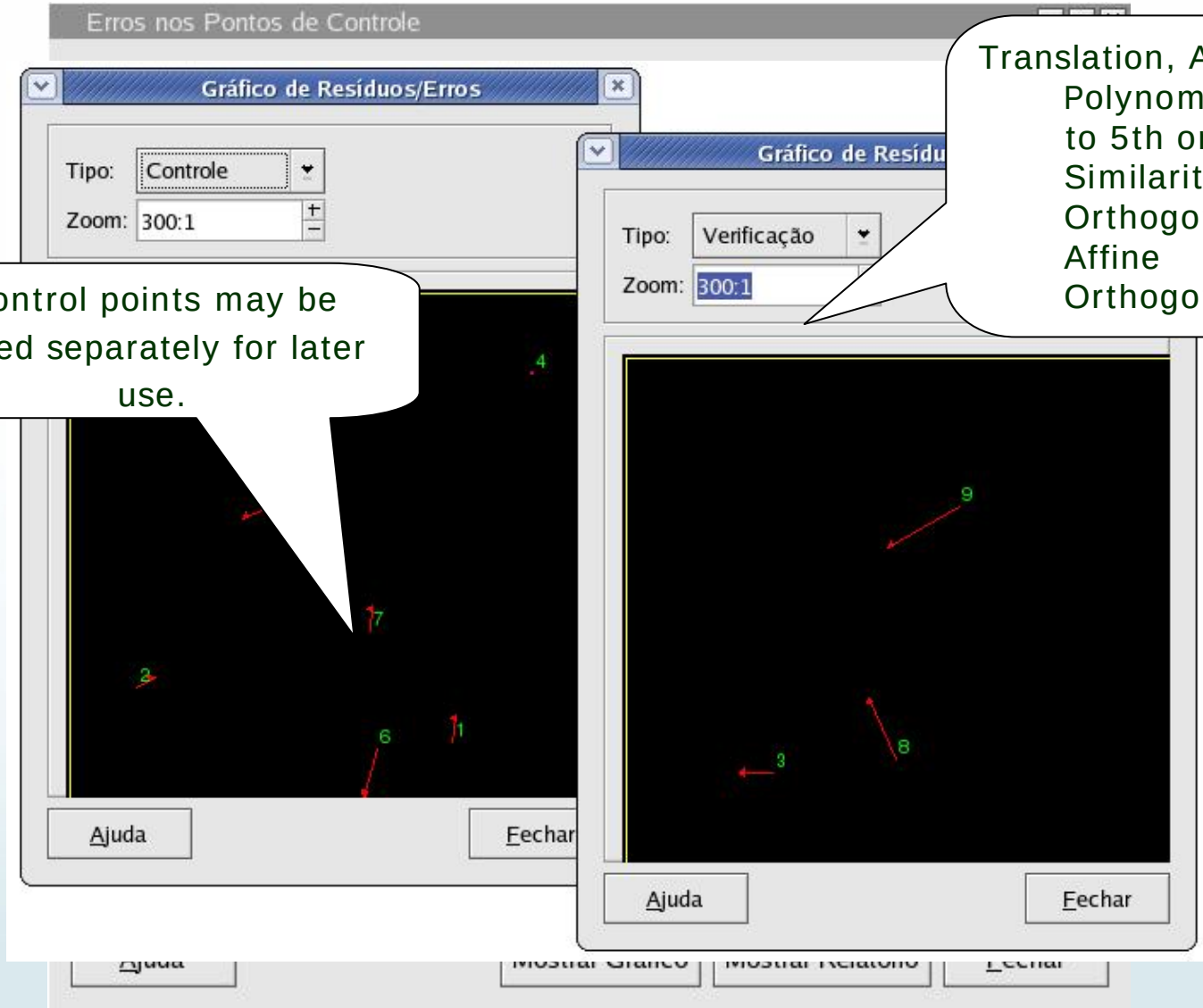


Control points may be obtained directly from displays, and classified as Control and/or Validation.

Reference system may be changed from Projection to Satellite. Make it easier to interpret the error source:

- Along track, time or pitch
- Cross track, yaw

Transformations & Residuals



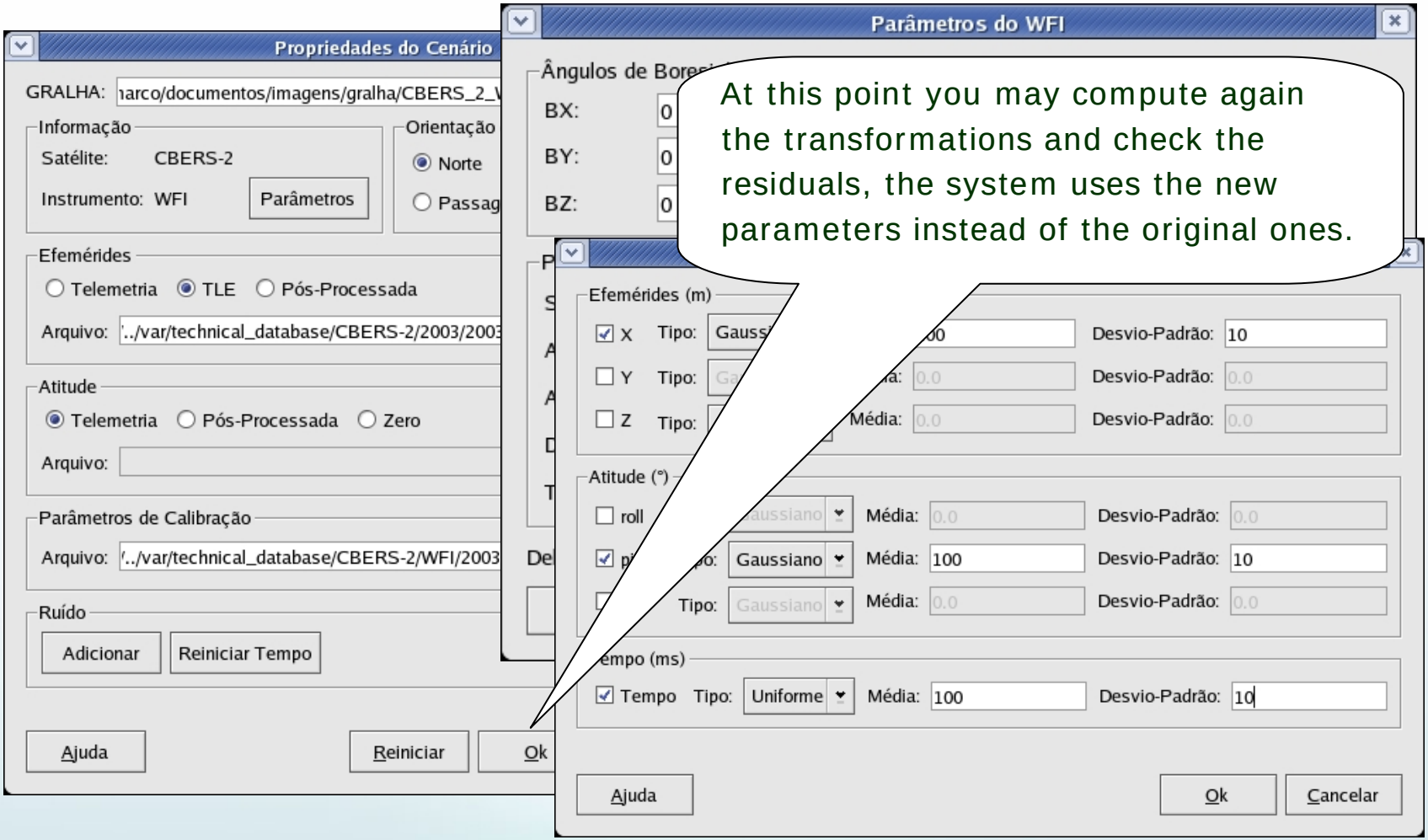
Control points may be saved separately for later use.

Translation, Affine, Polynomial (up to 5th order), Similarity, Orthogonal, Affine Orthogonal

Sailfish

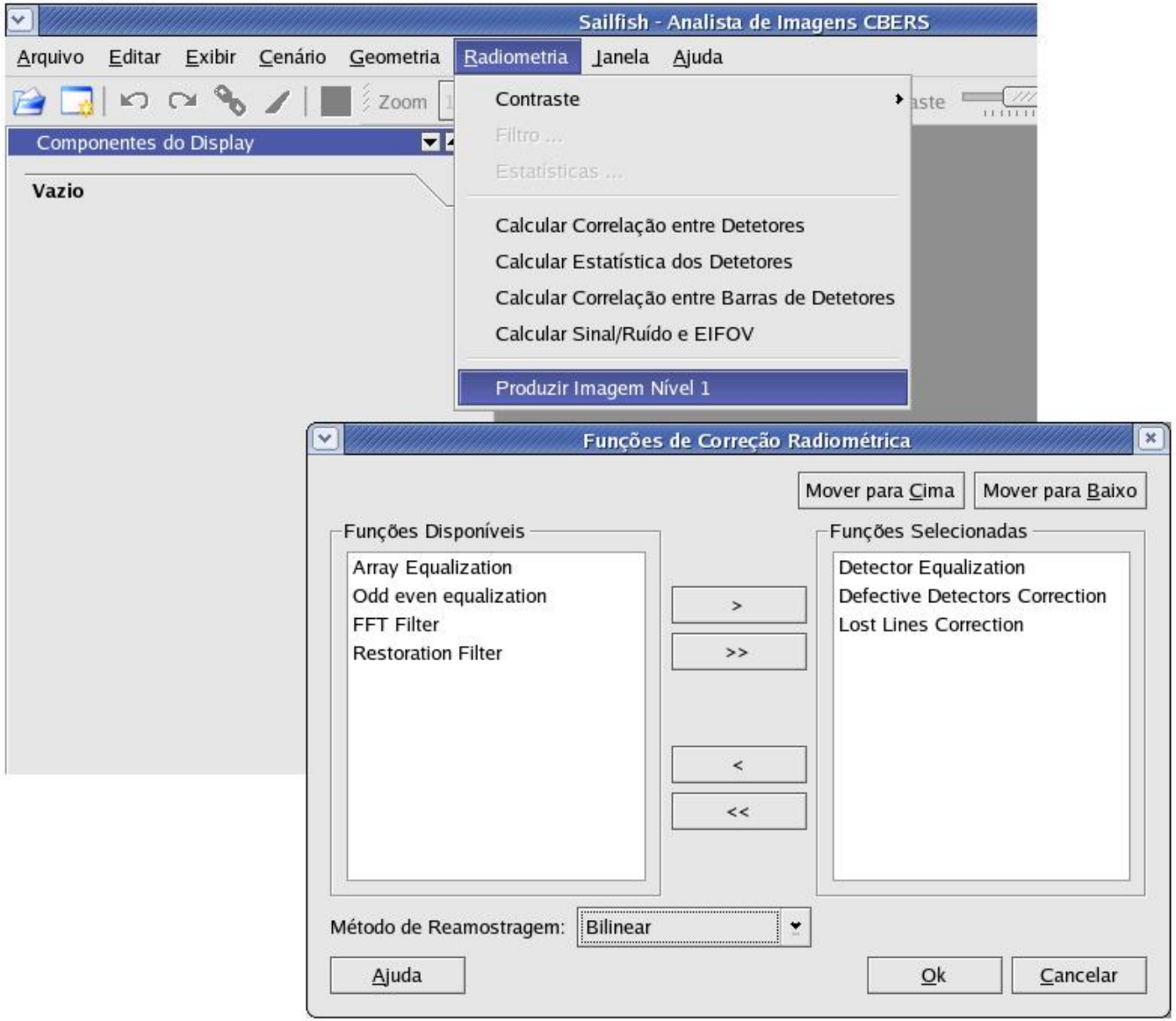
- Requirements by INPE, developed by Gisplan
- Advanced analysis for CBERS 1,2
  - CCD, IRMSS and WFI
- Extends Marlin functionality
  - Scenario: possible modification of radiometric and geometric parameters used during scene generation
- Integrated with the ground station processing system
  - Basic data is level 0 image
  - Up to level 4 images (ortho) may be generated with the adjusted parameters
  - Linux only

Sailfish Scenario



At this point you may compute again the transformations and check the residuals, the system uses the new parameters instead of the original ones.

Generating Level 1 Images



Inter Array Statistics

Sailfish - Statistics

Correlação entre Detetores

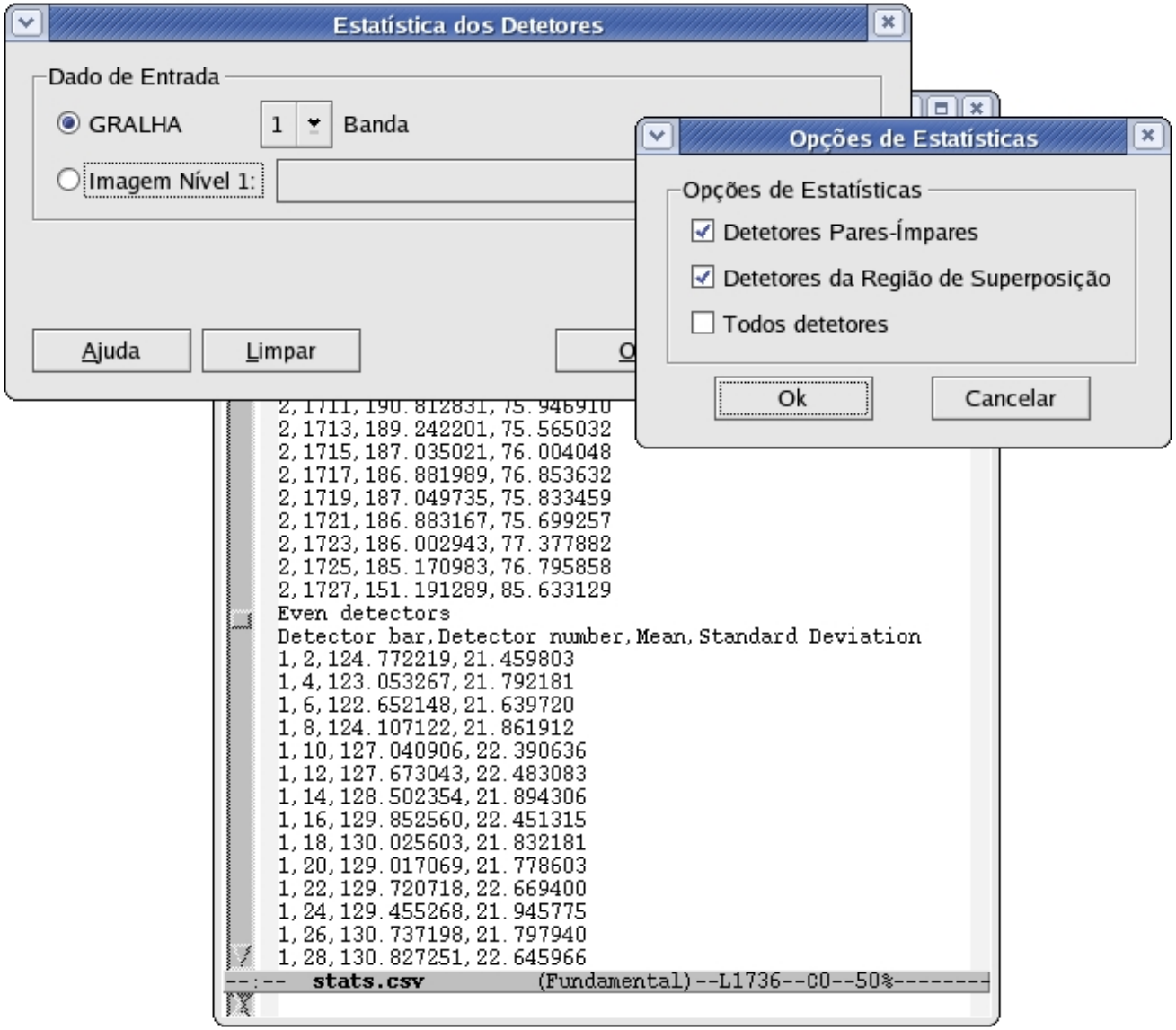
Correlação entre os Detetores CCD

Número da Barra	Número do Detetor	Correlação
1	1999	0.599722
1	2000	0.585968
1	2001	0.433485
1	2002	0.470992
1	2003	0.481824
1	2004	0.446855
1	2005	0.271549
1	2006	0.364545
1	2007	0.203392
1	2008	0.106935
1	2009	-0.0299972
1	2010	0.311706
1	2011	0.195447
1	2012	0.23879

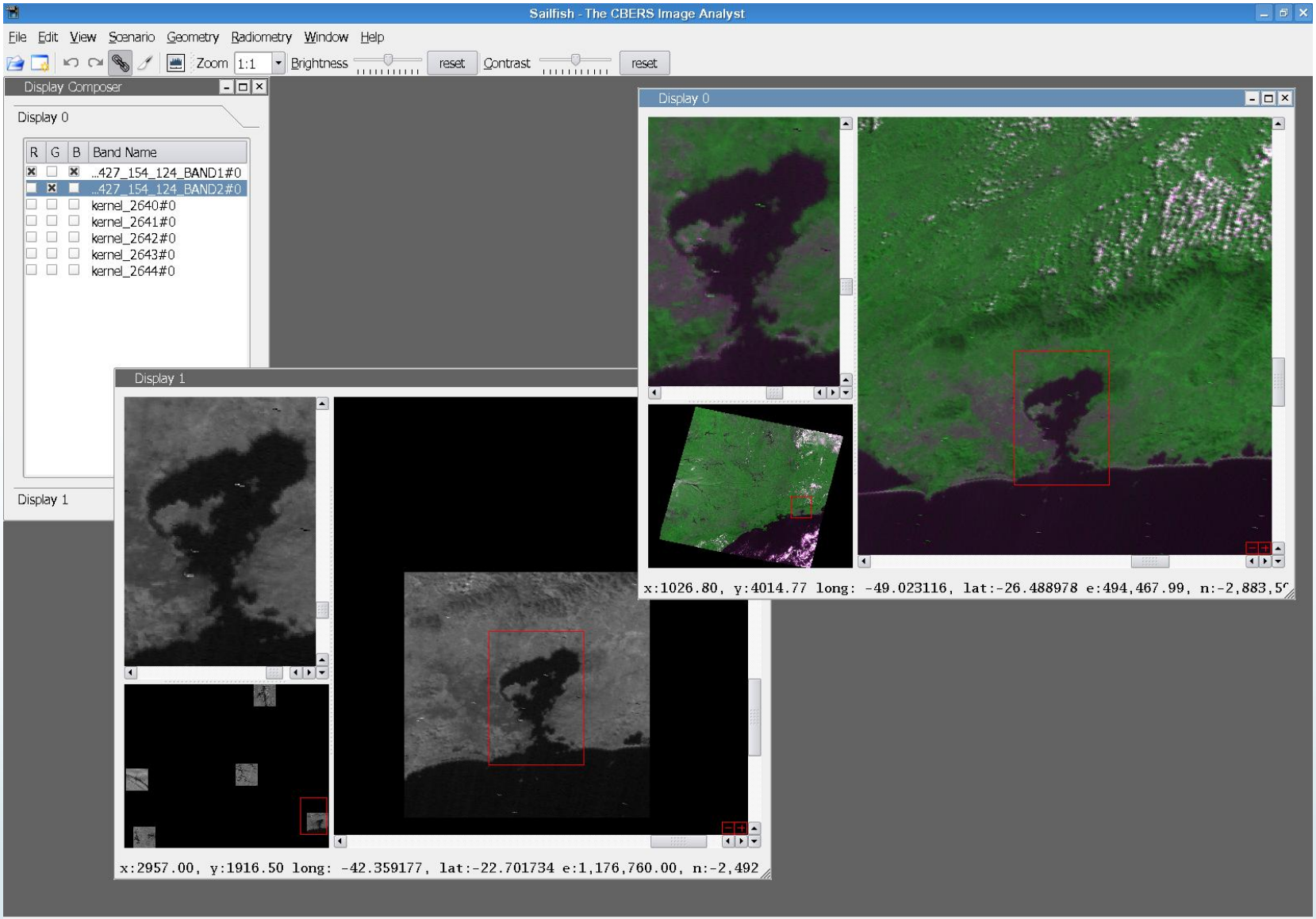
Ajuda

Fechar

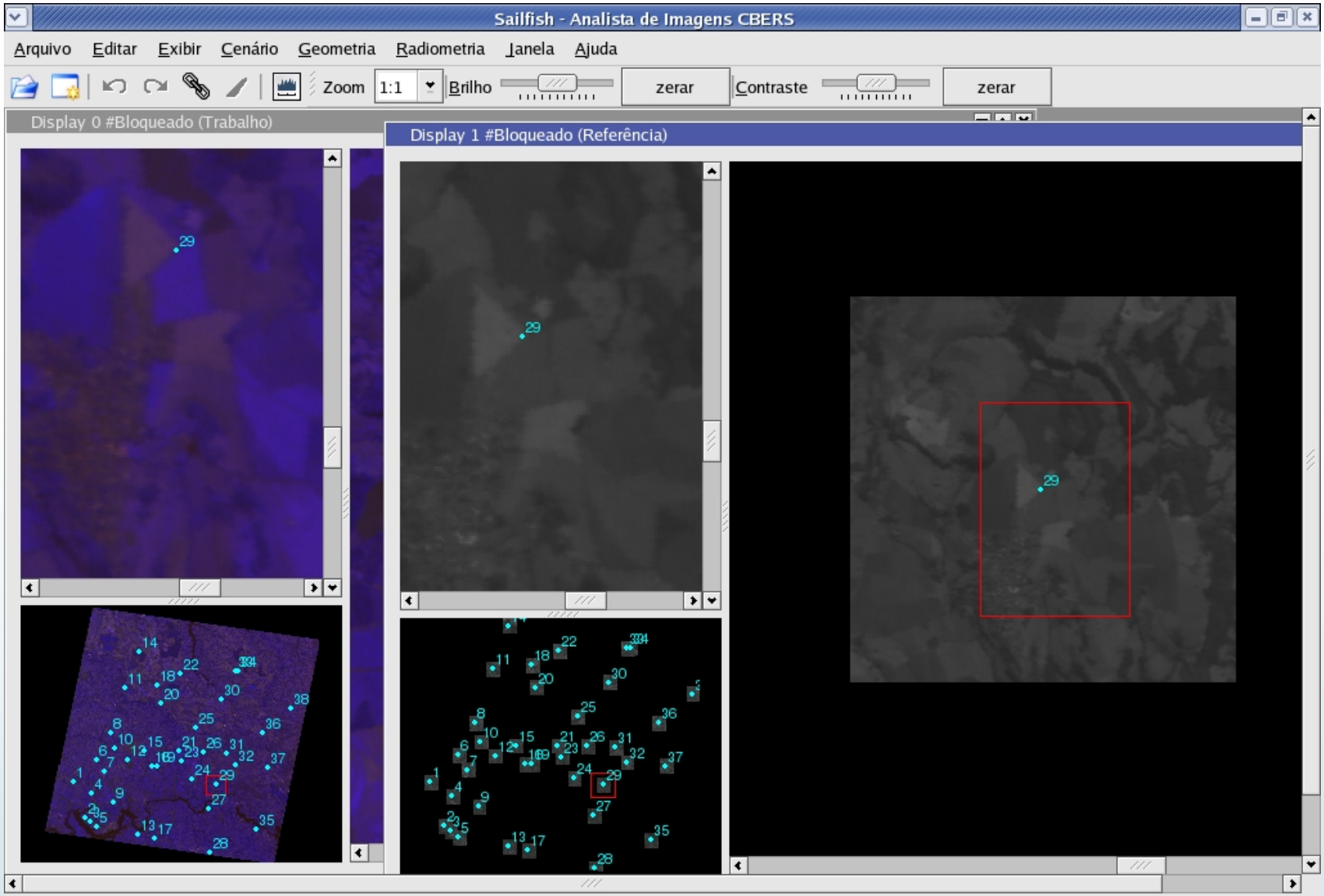
Sailfish - Statistics



Sailfish – GRDB Integration



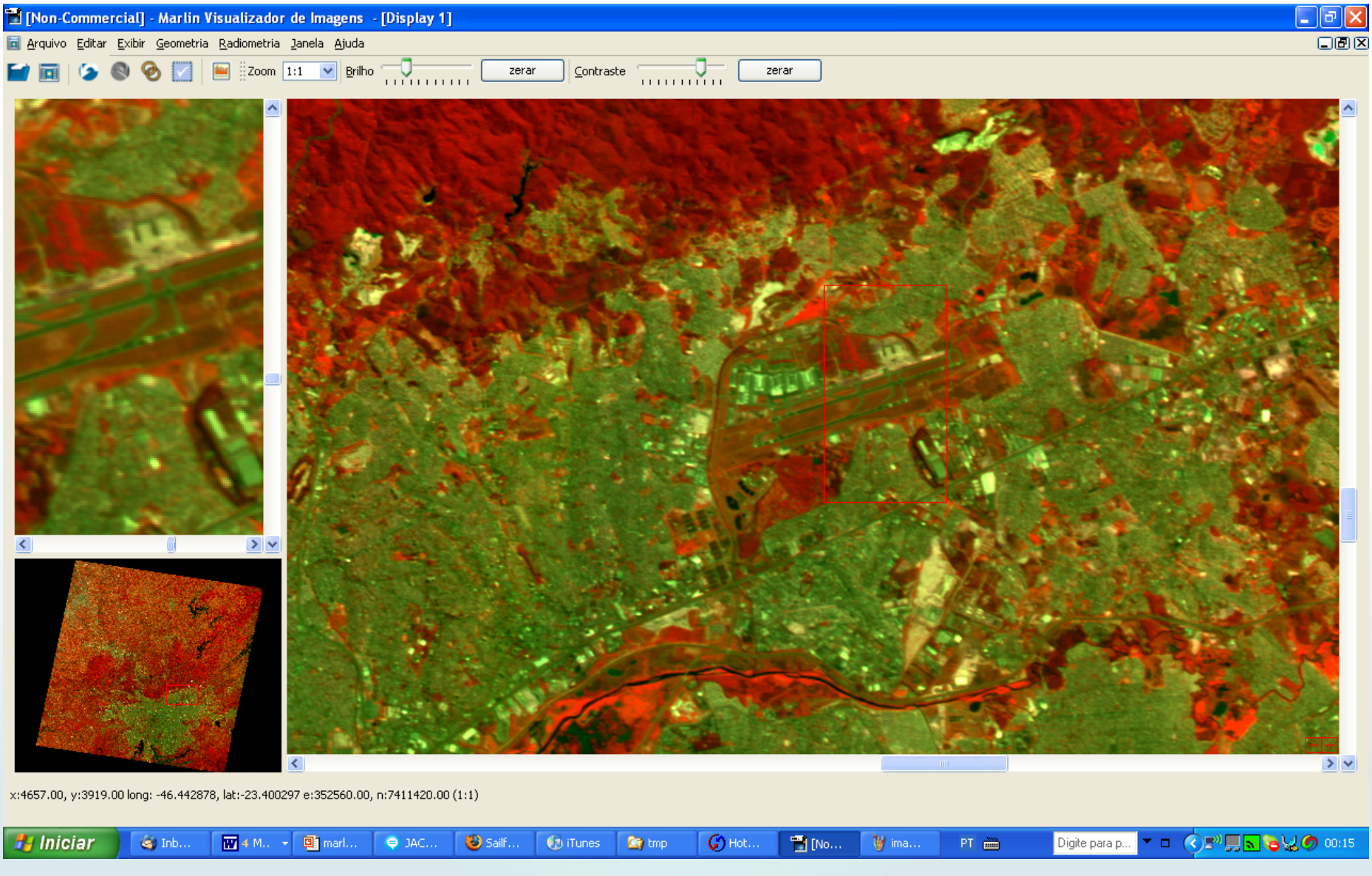
Sailfish – GRDB Integration



Current work

- Extension to support CBERS 2B
  - High Resolution Camera, HRC
- GRDB extensions
  - statistics on which kernels were used more often, and the error during the matching
- Marlin demonstration available

Thank You!


[Non-Commercial] - Marlin Visualizador de Imagens - [Display 1]
Arquivo Editar Exibir Geometria Radiometria Janela Ajuda
Zoom 1:1
Brilho
zerar
Contraste
zerar
x:4657.00, y:3919.00 long: -46.442878, lat:-23.400297 e:352560.00, n:7411420.00 (1:1)
Iniciar
00:15