CARTA

ASIAA CASA Development Center (ACDC) acknowledges the grant from the National Science and Technology Council for the Taiwan-US Astronomical Facility Collaboration: ALMA & GMT

Cube Analysis and Rendering Tool for Astronomy

Next-generation image visualization and analysis tool designed for ALMA, VLA, and SKA pathfinders

e-Poster

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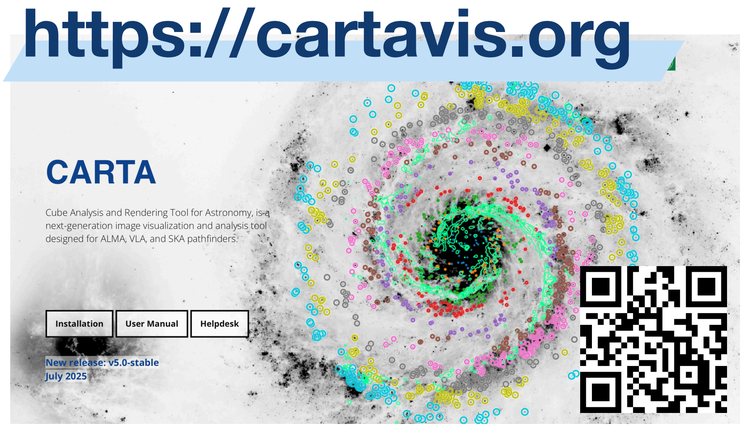
https://cartavis.org



High Performance

Client-Server Architecture

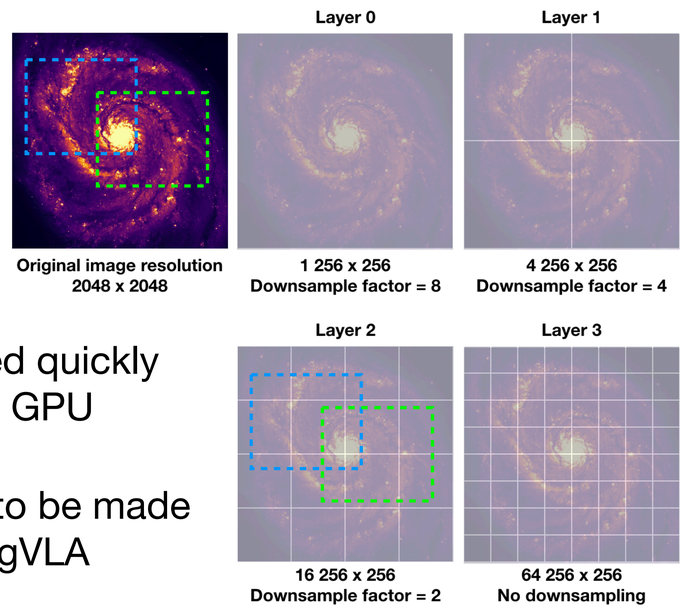
GPU-Accelerated Rendering

Client Side: Visualization & Lightweight computation

Server Side: Computation & Storage

CPU Parallelization

- Able to handle TB-sized cubes where only an image slice is cached at a time
- Applying latency-hiding techniques: downsampling, compression, and caching
- Large catalogs can be loaded quickly and rendered efficiently with GPU acceleration
- Performance enhancement to be made for ALMA-WSU, SKA, and ngVLA



Deployment Flexibility

Stand-Alone Application

- Supports: macOS 13 14 15, Ubuntu 22.04 24.04, RHEL 8 9, Docker

Site Deployment (CARTA Controller)

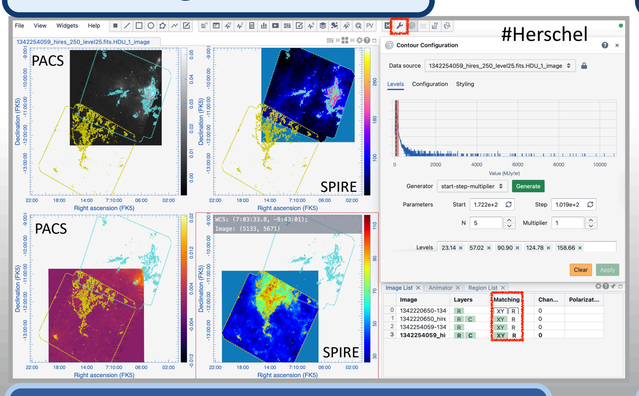
- Institution-wide deployment
- Manages process lifetime and user authentication

Integration with Science Archives

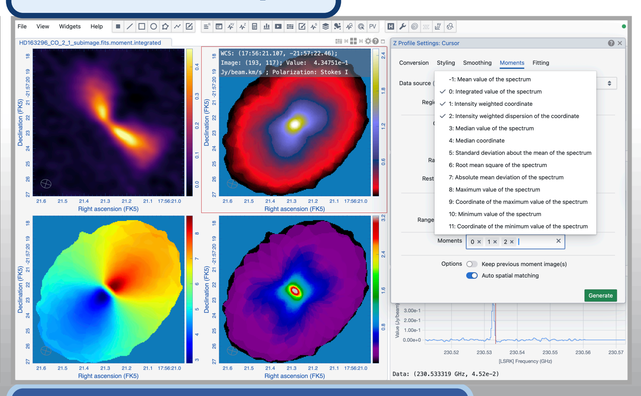
- ALMA, CASDA, NRAO archives
- Online previews before download

Efficient Analysis Tools

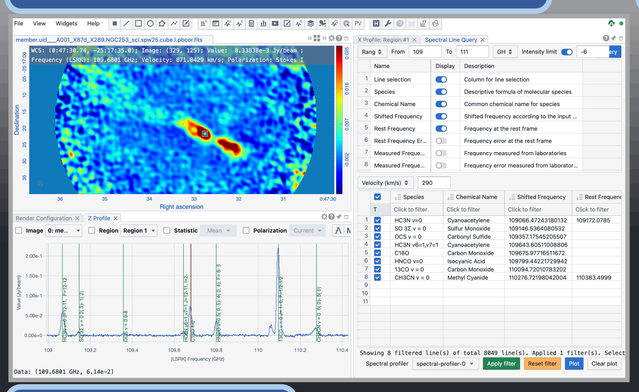
Matching & Contours



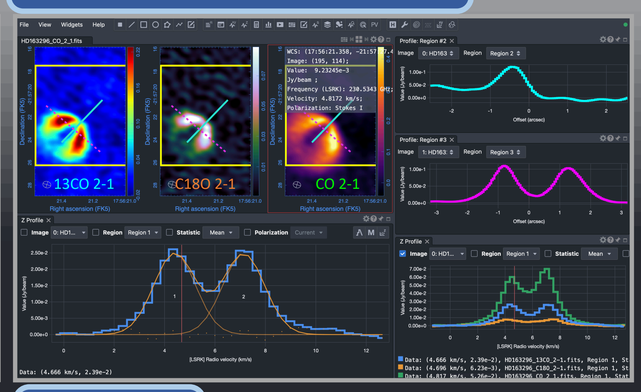
Moment Maps



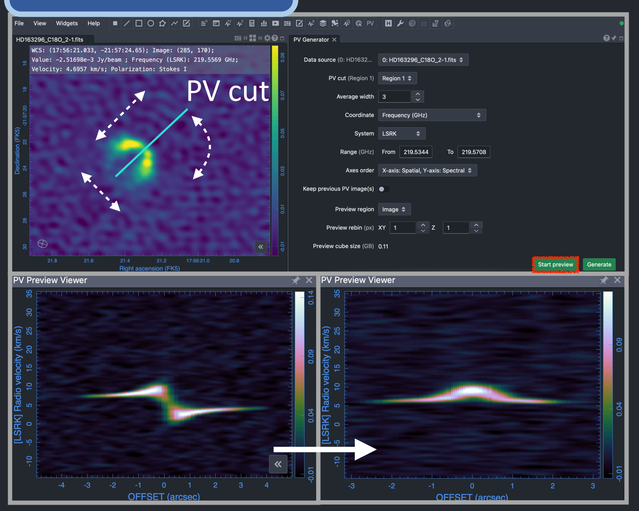
Spectral profile & Line query



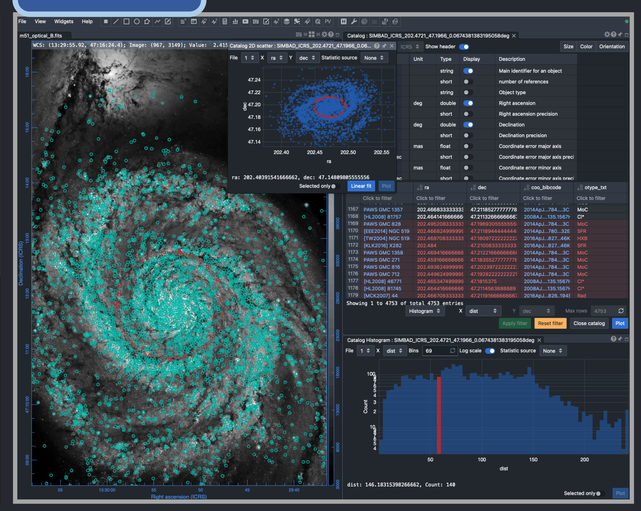
Profiles & Profile fitting



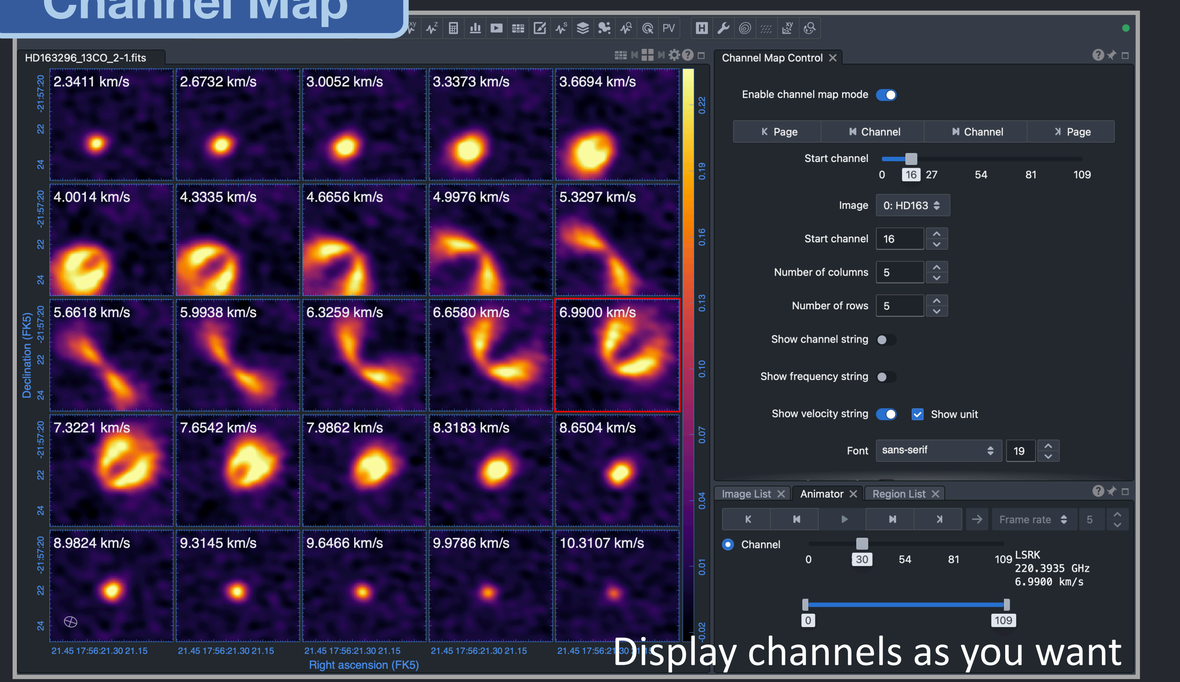
Interactive PV



Catalog



New in CARTA v5

Color Blending

Channel Map