VALD today and tomorrow

Inside VALD by N. Piskunov



VALD statistics





Data base includes nearly 100 line lists with total of over 42 million atomic lines



Main site is in Vienna, mirror sites are in Baltimore, Potsdam and Uppsala



Over 700 users from more than 70 countries and nearly 100000 requests have been processed in the last 6 years

VALD interiors

- DB consists of separate files for almost all line lists in heavily compressed format (factor of 25-40)
- Data stored: element/ion, wavelength, excitation energies, oscillator strength, Landé factors, stat. weights, rad., Stark and van der Waals damping parameters, term designation and comments
- First stage of extraction software decompresses and merges all the line lists in a stream of wavelength sort non-duplicated lines
- Next extraction step refines selection according to the request
- Pipelines are configured fully automatically by the EMS which parses user requests, creates control files etc.
- EMS works together with a web interface and typically a selection is provided within 20 minutes

VALD interiors (things that you may not know)

- Synchronization between mirror sites
- Personal configuration files
- Anonymous FTP access
- Bulk extraction for opacity calculations _ mirror sites
- "Manual" pipeline configuration

- \rightarrow mirror site
- Additional options for extraction (eV/cm⁻¹ etc.)

VALD 3: Vienna Astronomical Line Database

- VALD list of species
- Tables of partition functions for atoms, ions and 2-3 atomic molecules
- Selection tools have molecular&ionization equilibrium solver
- New line lists: atoms and 2-atomic molecules
- Molecular lists will come in two categories: good enough for detailed sp. synthesis and not so good but useful for opacity calculations
- Provision is made to provide additional information about Zeeman splitting pattern, extended van der Waals and Stark broadenings and Stark shifts.

VALD 3: Time line

- Software is ready and is been tested
- New line lists are been tested and converted to the VALD3 format
- VALD 3 will be operational in the Fall 2004
- We are planning to produce and publish comparison with observations early next year