ADAS Bulletin

Items:
1. ADAS release v2.11
2. CXSFIT
3. OPEN-ADAS
4. Code and data updates in release v2.11.

1. ADAS release v2.11

This bulletin and release is not quite as I expected. At the last bulletin (18dec05) I indicated that the present release would be release v3.0 and would contain the full heavy species extension. I am sorry to disappoint. The heavy species extension is now pretty well complete and the substantive data generation is underway. However, as mentioned in the previous bulletin, there are numerous knock-on effects – especially changes to core subroutines such as xxdata_04 - and extensions to data class prescriptions - especially structured comment sections in data classes such as adf15 for automatic superstage processing. These completions have come rather recently, with insufficient time to follow through and verify all the consequential changes in the many dependent ADAS codes. So we have chosen to do a conventional correction release now, v2.11, and intend to follow it soon with v3.0 once we are confident that the changes will not make other parts of ADAS ‘fall over’.

Also we have put substantial ADAS staff effort into CXSFIT and OPEN-ADAS in the last six months. It is the developmental version of OPEN-ADAS which has pointed up small errors in data sets which we have corrected in this release. Since these new codes and their deployment are important issues for the ADAS workshop in November, I wished to explain in the bulletin a little about how these tasks are coming along.

2. CXSFIT

CXSFIT is of course the redevelopment of Manfred’s KS4FIT in an updated, IDL-based form with clear decoupling of specific machine issues from core analysis. It will be suitable for use in CXS analysis everywhere, once appropriate local interface routines are provided. It was initiated as a shared development by FZ-Juelich, IPP Garching, EFDA-JET/UKAEA Culham and ADAS with the handling of all the coding, maintenance etc undertaken by ADAS. Allan Whiteford is doing the actual implementation.

CXSFIT is one of these special codes under the ADAS umbrella, which is not part of the general ADAS release. It is too specialised and needs close collaboration with staff at laboratories which plan to use it, so that the interfacing procedures can be put in place. It is, though, an ADAS development for the use of ADAS participants if they wish it. CXSFIT is now working successfully at IPP Garching and EFDA-JET and I must say that we are rather pleased with it. In my view, Allan has done an excellent job and has put in great efforts to sort out all the myriads of little issues. He, Manfred, Lorne, Andy, Klaus-Dieter, Costanza, Jasmine and Carine have spent large amounts of time closeted together on these matters. Below, we show just two of the screens – one showing the actually spectral fit of a CXS line spectral interval and the many control tabs, and the other showing the spatial & temporal traces of the extracted CXS temperature and its surface. Allan will talk more about CXSFIT at the ADAS workshop and associated work-in in November, but the message I wish to transmit in the bulletin is that CXSFIT is now available and the development team are very willing to enable ADAS participants worldwide to use it if they wish.
CXSFIT: Spectral fit for a single track and time slice of CXS emission interval for the CVI(n=8-7) feature – EFDA-JET discharge.

CXSFIT: Parameter extraction from complete multi-frame, multi-track fit – ion temperature from an EFDA-JET discharge.

3. OPEN-ADAS

Alan started work on the project, which is partly sponsored by IAEA, in June and has made rapid progress. You will recall the broad plan for OPEN-ADAS which I circulated with the last bulletin. Once we got down to detailed discussions of our various concepts of a user-friendly access to the data and also once Allan examined the programming issues in depth, we decided on a different appearance and layering for the user interface although the underlying structural organisation is as originally
planned. Coming to the user interface, it was clear that, since it had to be web-based and platform
independent, it should be coded in HTML. The scanning and textual analysis of datasets and dataset
names for the setting up of the tag files is handled in PERL. This proved to be extremely fast and
effective. It turns that it will only be a modest task to scan the whole database to re-generate the tag
files for each release – all though it does require many thousands of lines of code! Also Allan has
linked the tag files to MYSQL to give normal database facilities. At the moment we have focussed on
a few of the main ADAS data formats (adf04, adf09, adf15) as we have evolved the look and feel of the
interface. I have shown some samples below. We are able to come in very directly by element and
ion, wavelength range etc as shown in the first screen dump. The menu on the left shows the entry
routes.

Once we are into a data format such as adf15, we can zero down on the actual transitions and datasets
available by element, ion and wavelength range – this aspect varies dependent on the data format. I
show this in the screen-shot below for adf15.

![Image of ADAS interface showing search results for adf15]

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3
When we select the actual dataset, we obtain the key information as shown in the last screen-shot below. Note the summary information at the top left, also the actions possible at the top right. Also just below the blue box at the top right, note the ‘Show origin information’ field. This brings up the antecedents and descendents of the dataset, authorship and so on. There is still a lot to do to complete all the facilities, but we feel pretty pleased so far with the interface and its speed. Allan will talk more about OPEN-ADAS at the workshop, but I do feel pretty confident now that it will provide a helpful contribution to making available the public domain data parts of ADAS as well has satisfying the long expressed need by ADAS members for a ‘mechanism for selecting interactively the data for ADAS codes and hopefully finally answering the criticism of knowing what ADAS data to use’ – to paraphrase my comments from the last bulletin.

### 4. Code and data updates in v2.11

**Corrections and additions to codes** (ADAS v2.10 to ADAS v2.11)

C.1 Fixed two small errors in offline version of *adas310* - one stopped a minimum n shell being passed in (but the default was sensible so should not have caused a problem), the other caused occasional problems when requesting an *adf21* file due to files not being flushed by fortran before IDL acted on them.

C.2 Three development files, *t.pro*, *test.pro* and *start.pro* were in the *adas802* directory. As these names are generic and may conflict with users files they have been removed. They should never have been in the central distribution.

C.3 Increased *itdimd* to 2001 (so that 2000 Te/Ne pairs can now be read in one go) in *readadf11.for*. This should have been changed at the same time as *ntdim* (see C.13 from last release).

C.4 Add the *fulldata* output structure to *read_adf13.pro* which means that *xxdata_13.for* and *xxdata_13.pro* routines are also now available.

C.5 Modified *run_310* so that the finish signal is only sent to IDL after the last passing file has been written.
C.6 As part of bringing the new beryllium data into the GCR project a number of issues with the ADAS processing codes arose:

- An underflow error in adas204 which caused NaN to be written to the projection matrix (adf17) was corrected. This only affected Sun and g77 binaries.

- The opportunity was taken to upgrade adas208 a little. The main difference is that the strongest 50 (or as many dictated by wavelength and A-value limits) photon emissivity coefficients as well as the accompanying sxb coefficients are written. This is in contrast to the previous behaviour where the first 50 coefficients were written.

- The new standard way of accessing specific ion file, via a call to xxdata_04, is now used.

- At low temperatures there was a problem in interpolating the sxb data due to zero values. A new correction routine to force an exponential fall-off rather than setting the values to zero was introduced.

- The dimensions were increased to 150 levels and 5500 transitions. Note that this is still not sufficient to process adf04 from the high Z project but adas810 will accommodate these datasets.

- The projection reading routine now writes its success status to the screen. The user need no longer check the paper.txt output to see if adding projection was successful.

- A potential error in evaluating the ‘S-line’ ionisation rate at low temperatures was fixed. This only occurred if the rate was effectively zero.

- The options for how to extrapolate the resolved adf11 data were made the same as those used to generate the unresolved data.

These changes should not affect the data already present but we have planned a comprehensive review of all the GCR data this year as part of the code changes coming from the heavy element analysis.

C.7 run_adas505.pro has been added. The non-interactive version does not interrogate the adf14 datasets but is used to generate the H-line data for inclusion in the adf04 specific ion datasets. The purpose of the non-interactive version is to allow a more rapid exploration of the differences in donor and receiver temperature behaviour.

C.8 Modified r8gav.for and r8giiav.for so that they do not contain an external statement, which caused problems on linux/g77 when doing a -ladaslib.

C.9 Add the fulldata output structure to read_adf24.pro which means that xxdata_24.for and xxdata_24.pro routines are also now available.

C.10 An IDL version of the ceevth.for routine is available. This generates a rate coefficient from charge exchange cross sections (from read_adf24 or read_adf01) for four cases: mono-energetic donor/thermal receiver, thermal donor/mono-energetic receiver, thermal donor/thermal receiver (same temperature) and a mono-energetic case which converts input cross-sections tabulated at a set of energies/amu to output cross-sections tabulated a different set of energies/amu.

C.11 The labelling of the charge exchange levels (H-lines) in the fulldata structure from read_adf04.pro was incorrect. Also add the metastable parents to the fulldata structure.

C.12 run_adas403.pro enables the partial GCR coefficients from adas208 to be integrated into the adf10 data via a stand alone process. This routine was missed when the repository was converted from SCCS to CVS.

C.13 run_adas404.pro is the non-interactive version of adas404 used to generate adf11 data (metastable resolved or unresolved) from the partial adf10 datasets. Selective adf10 inputs are
possible via optional parameters. No checking of these options is done as we assume you will
know what you are doing in this case!

C.14 Some minor changes to the adas408 code when generating filtered continuum power (prb) files.
More checks are included which slows the code a little.

C.15 Change behaviour of adas503 so that temperatures don't need to be in ascending order. Non-
monotonically increasing temperatures may have a knock-on effect to the plotting routines but
there is no good reason to limit the temperatures like this. This also fixes a problem when selecting
default Ne and then trying to edit the table.

C.16 Change check for minor version number of '3' to a full check for a version of '5.3' on startup.
Checking the minor version number only was causing ADAS to refuse to function on IDL 6.3.

C.17 In write_adf04.pro check for valid ‘R’, ‘S’ or ‘H’ data before writing the file.

C.18 Added more routines from adas804 to libadas8xx. These are routines underpinning the
conversion of collision strengths to Maxwell averaged effective collision strengths.

C.19 Add an IDL version of ngffmh, which calculates the Maxwell and frequency averaged free-free
Gaunt factor. The IDL version allows a vector input whereas the fortran version is limited to a
single input value.

C.20 Updated version number to 2.11

**Corrections and updates to data** (ADAS v2.10 to ADAS v2.11)

D.1 The was a format error in the ionisation dataset, szd93#b3_be.dat. It was not present in the
individual ion files.

D.2 Beryllium has been added to the 96 GCR set of data. The principal excitation came from Connor
A68, 032712 (2003)). These data are archived in the appropriate iso-electronic collections:

cpf04/belike/belike_cpb03_ls#be0.dat
cpf04/lilike/lilike_cpb03_ls#be1.dat
cpf04/helike/helike_cpb03_ls#be2.dat
cpf04/hlike/hlike_cpb03_ls#be3.dat

with the ionisation in cpf07 and cpf23 collections:

cpf07/szd03#be/szd03#be_be.dat
cpf23/sld03#be/sld03#be_be0.dat etc.

The sld identifier denotes Stuart Loch who generated the rates and assembled the data.

The cpf04 data was supplemented with adas801 generated extra levels and A-values, NIST
energy values and ionisation potentials. These data are archived in the cpf04/adas#4 directory
(cpbo3_ls#be0.dat etc.).

The copmm#4, adas801 generated, isonuclear set has been updated with newer runs.

The dielectronic data used is from adf09/nrb93#<> collection to keep with the previous work.

All other supporting datasets (adf25, adf18, adf08) necessary for a GCR calculation are in the
expected places.

The derived data is archived under the 96 identifier, giving:

cpf11/acd96/acd96#be.dat etc. (for acd, scd, prb and plt)
cpf11/acd96r/acd96r#be.dat etc (for acd, scd, qcd, scd, plt
and prb classes).

Again the cpf10 isoelectronic partial data is added to the existing datasets.
The photon emissivity and ionisations per photon are archived in adf15/pec96#be and adf13/sxb96#be in metastable resolved and unresolved forms.

D.3 Germanium has been added to the system. Baseline adf04 data at LS and IC resolutions is in adf04/copmm#32. The adf34 driver files can be found in adf34/germanium. New '89' style adf1l data along with the adf03 driver file is also added.

D.4 Renamed files in adf04/belike:

belike_hps89be1.dat -> belike_hps89a#be0.dat
belike_hps89be2.dat -> belike_hps89b#be0.dat
belike_hps89be1.dat -> belike_hps89c#be0.dat
belike_hps89be#.dat -> belike_hps89d#be0.dat

D.5 Renamed adas/adf04/copmm#16/ls#so.dat to ls#s0.dat

D.6 Added '+' to first line of adf04/lilike/lilike_dcg01#li0.dat
i.e. "Li  0" -> "Li+  0"

D.7 Removed file: adf04/helike/helike_betest.dat

D.8 Changed z0 to 2 in the first lines of:
adf04/helike/helike_fujl78he.dat
adf04/helike/helike_fujh78he.dat

D.9 Removed adf04/helike/helike_hpslhex.dat. The file helike_hpsl91he.dat contains the same data but with some corrected A-values and a more standard formatting and filename.


D.11 Gave adf04/blike/blike_hps96#c1l.dat UNIX rather than DOS line breaks

D.12 Removed adf04/blike/blike_jl96#ne5j.dat%.

D.13 Renamed files in adf04/nlike:
hps1985o.dat -> nlike_hps85#o1.dat
wjd92#o.dat -> nlike_wjd92#o1.dat
jl1990o.dat -> nlike_jl90#o1.dat

D.14 Removed adf04/nlike/g1981o.dat.

D.15 Added correct data termination block to nlike_hps85#o1.dat.

D.16 Changed Z to 2 and Z1 to 3 in:
adf04/copmm#5/ls#b2.dat
adf04/copmm#5jj#b2.dat

D.17 Made an adf05/clike directory.

D.18 Moved adf05 files which were in the adf04 directory structure to their appropriate place, specifically:

adf04/lilike/lilike_ges1981.dat -> adf05/lilike/
adf04/helike/helike_spc1978.dat -> adf05/helike/
adf04/clike/clike_bfd1980.dat -> adf05/clike/.

D.19 Updated adf09/nrbza00#b/za00#b_k14ls22.dat which actually contained IC data with one which now contains LS data.

D.20 Added datablock terminators (" -1 -1") to:

adf04/belike/belike_hps1986c.dat
D.21 Updated adf00 ground configurations and ionisation potentials from NIST also addressed some formatting issues.

D.22 Updated adf09/nrbdmm00#n/nrb00#n_o1ic223.dat to have 5 parent states

D.23 Added

adf09/nrbdmm00#n/nrb00#n_al6ic22.dat
adf09/nrbdmm00#n/nrb00#n_al6ic23.dat
adf09/nrbdmm00#n/nrb00#n_al6ls22.dat
adf09/nrbdmm00#n/nrb00#n_al6ls23.dat
adf09/nrbdmm00#n/nrb00#n_ar11ic22.dat
adf09/nrbdmm00#n/nrb00#n_ar11ic23.dat
adf09/nrbdmm00#n/nrb00#n_ar11ls22.dat
adf09/nrbdmm00#n/nrb00#n_ar11ls23.dat
adf09/nrbdmm00#n/nrb00#n_ca13ic22.dat
adf09/nrbdmm00#n/nrb00#n_ca13ic23.dat
adf09/nrbdmm00#n/nrb00#n_ca13ls22.dat
adf09/nrbdmm00#n/nrb00#n_ca13ls23.dat
adf09/nrbdmm00#n/nrb00#n_c110ic22.dat
adf09/nrbdmm00#n/nrb00#n_c110ic23.dat
adf09/nrbdmm00#n/nrb00#n_c110ls22.dat
adf09/nrbdmm00#n/nrb00#n_c110ls23.dat
adf09/nrbdmm00#n/nrb00#n_co20ic22.dat
adf09/nrbdmm00#n/nrb00#n_co20ic23.dat
adf09/nrbdmm00#n/nrb00#n_co20ls22.dat
adf09/nrbdmm00#n/nrb00#n_co20ls23.dat
adf09/nrbdmm00#n/nrb00#n_cr17ic22.dat
adf09/nrbdmm00#n/nrb00#n_cr17ic23.dat
adf09/nrbdmm00#n/nrb00#n_cr17ls22.dat
adf09/nrbdmm00#n/nrb00#n_cr17ls23.dat
Although there was nothing wrong with the dmm00 adf09 data, it only gave IC/ICR and only M=4 metastables. The new data has re-run everything so as to get M=5, and so has a full set of LS data as well. ICR below Zn was not rerun (the old data switched from IC to ICR at Sc) as Zn was the switch for all other sequences. dmm data ICR Sc-Cu still the recommendation, but nrb data should be used for everything else.

D.24 Added files:

adf27/dr/nlike/nrb00#n/al6ic22-2.dat
adf27/dr/nlike/nrb00#n/al6ic22-n.dat
adf27/dr/nlike/nrb00#n/al6ic22_str.dat
adf27/dr/nlike/nrb00#n/al6ic23-3e.dat
adf27/dr/nlike/nrb00#n/al6ic23-3o.dat
adf27/dr/nlike/nrb00#n/al6ic23-ne.dat
adf27/dr/nlike/nrb00#n/al6ic23-no.dat
adf27/dr/nlike/nrb00#n/al6ic23_str.dat
adf27/dr/nlike/nrb00#n/ar11ic22-2.dat
adf27/dr/nlike/nrb00#n/ar11ic22-n.dat
adf27/dr/nlike/nrb00#n/ar11ic22_str.dat
adf27/dr/nlike/nrb00#n/ar11ic23-3e.dat
adf27/dr/nlike/nrb00#n/ar11ic23-3o.dat
adf27/dr/nlike/nrb00#n/ar11ic23-ne.dat
adf27/dr/nlike/nrb00#n/ar11ic23-no.dat
adf27/dr/nlike/nrb00#n/ar11ic23_str.dat
adf27/dr/nlike/nrb00#n/ca13ic22-2.dat
adf27/dr/nlike/nrb00#n/ca13ic22-n.dat
adf27/dr/nlike/nrb00#n/ca13ic22_str.dat
adf27/dr/nlike/nrb00#n/ca13ic23-3e.dat
adf27/dr/nlike/nrb00#n/ca13ic23-3o.dat
adf27/dr/nlike/nrb00#n/ca13ic23-ne.dat
adf27/dr/nlike/nrb00#n/ca13ic23-no.dat
adf27/dr/nlike/nrb00#n/ca13ic23_str.dat
adf27/dr/nlike/nrb00#n/cl10ic22-2.dat
adf27/dr/nlike/nrb00#n/cl10ic22-n.dat
adf27/dr/nlike/nrb00#n/cl10ic22_str.dat
adf27/dr/nlike/nrb00#n/cl10ic23-3e.dat
adf27/dr/nlike/nrb00#n/cl10ic23-3o.dat
adf27/dr/nlike/nrb00#n/cl10ic23-ne.dat
adf27/dr/nlike/nrb00#n/cl10ic23-no.dat
adf27/dr/nlike/nrb00#n/cl10ic23_str.dat
adf27/dr/nlike/nrb00#n/co20ic22-2.dat
adf27/dr/nlike/nrb00#n/co20ic22-2.dat
adf27/dr/nlike/nrb00#n/co20ic22_str.dat
adf27/dr/nlike/nrb00#n/co20ic23-3e.dat
adf27/dr/nlike/nrb00#n/co20ic23-3o.dat
adf27/dr/nlike/nrb00#n/co20ic23-ne.dat
adf27/dr/nlike/nrb00#n/co20ic23-no.dat
adf27/dr/nlike/nrb00#n/co20ic23_str.dat
adf27/dr/nlike/nrb00#n/cr17ic22-2.dat
adf27/dr/nlike/nrb00#n/cr17ic22_n.dat
adf27/dr/nlike/nrb00#n/cr17ic22_str.dat
adf27/dr/nlike/nrb00#n/cr17ic23-3e.dat
adf27/dr/nlike/nrb00#n/cr17ic23-3o.dat
adf27/dr/nlike/nrb00#n/cr17ic23-ne.dat
adf27/dr/nlike/nrb00#n/cr17ic23-no.dat
adf27/dr/nlike/nrb00#n/cr17ic23_str.dat
adf27/dr/nlike/nrb00#n/cu22ic22-2.dat
adf27/dr/nlike/nrb00#n/cu22ic22_n.dat
adf27/dr/nlike/nrb00#n/cu22ic22_str.dat
adf27/dr/nlike/nrb00#n/cu22ic23-3e.dat
adf27/dr/nlike/nrb00#n/cu22ic23-3o.dat
adf27/dr/nlike/nrb00#n/cu22ic23-ne.dat
adf27/dr/nlike/nrb00#n/cu22ic23-no.dat
adf27/dr/nlike/nrb00#n/cu22ic23_str.dat
adf27/dr/nlike/nrb00#n/f2ic22-2.dat
adf27/dr/nlike/nrb00#n/f2ic22_n.dat
adf27/dr/nlike/nrb00#n/f2ic22_str.dat
adf27/dr/nlike/nrb00#n/f2ic23-3e.dat
adf27/dr/nlike/nrb00#n/f2ic23-3o.dat
adf27/dr/nlike/nrb00#n/f2ic23-ne.dat
adf27/dr/nlike/nrb00#n/f2ic23-no.dat
adf27/dr/nlike/nrb00#n/f2ic23_str.dat
adf27/dr/nlike/nrb00#n/fe19ic22-2.dat
adf27/dr/nlike/nrb00#n/fe19ic22_n.dat
adf27/dr/nlike/nrb00#n/fe19ic22_str.dat
adf27/dr/nlike/nrb00#n/fe19ic23-3e.dat
adf27/dr/nlike/nrb00#n/fe19ic23-3o.dat
adf27/dr/nlike/nrb00#n/fe19ic23-ne.dat
adf27/dr/nlike/nrb00#n/fe19ic23-no.dat
adf27/dr/nlike/nrb00#n/fe19ic23_str.dat
adf27/dr/nlike/nrb00#n/k12ic22-2.dat
adf27/dr/nlike/nrb00#n/k12ic22_n.dat
adf27/dr/nlike/nrb00#n/k12ic22_str.dat
adf27/dr/nlike/nrb00#n/k12ic23-3e.dat
adf27/dr/nlike/nrb00#n/k12ic23-3o.dat
adf27/dr/nlike/nrb00#n/k12ic23-ne.dat
adf27/dr/nlike/nrb00#n/k12ic23-no.dat
adf27/dr/nlike/nrb00#n/k12ic23_str.dat
adf27/dr/nlike/nrb00#n/kr29icr22-2.dat
adf27/dr/nlike/nrb00#n/kr29icr22_n.dat
adf27/dr/nlike/nrb00#n/kr29icr22_str.dat
adf27/dr/nlike/nrb00#n/kr29icr23-3e.dat
adf27/dr/nlike/nrb00#n/kr29icr23-3o.dat
adf27/dr/nlike/nrb00#n/kr29icr23-ne.dat
adf27/dr/nlike/nrb00#n/kr29icr23-no.dat
adf27/dr/nlike/nrb00#n/kr29icr23_str.dat
adf27/dr/nlike/nrb00#n/mg5ic22-2.dat
adf27/dr/nlike/nrb00#n/mg5ic22_n.dat
adf27/dr/nlike/nrb00#n/mg5ic22_str.dat
adf27/dr/nlike/nrb00#n/mg5ic23-3e.dat
adf27/dr/nlike/nrb00#n/mg5ic23-3o.dat
adf27/dr/nlike/nrb00#n/mg5ic23-ne.dat
adf27/dr/nlike/nrb00#n/mg5ic23-no.dat
adf27/dr/nlike/nrb00#n/mg5ic23_str.dat
adf27/dr/nlike/nrb00#n/k12ic23-3e.dat
adf27/dr/nlike/nrb00#n/k12ic23-3o.dat
adf27/dr/nlike/nrb00#n/k12ic23-ne.dat
adf27/dr/nlike/nrb00#n/k12ic23-no.dat
adf27/dr/nlike/nrb00#n/k12ic23_str.dat
adf27/dr/nlike/nrb00#n/kr29icr22-2.dat
adf27/dr/nlike/nrb00#n/kr29icr22_n.dat
adf27/dr/nlike/nrb00#n/kr29icr22_str.dat
adf27/dr/nlike/nrb00#n/kr29icr23-3e.dat
adf27/dr/nlike/nrb00#n/kr29icr23-3o.dat
adf27/dr/nlike/nrb00#n/kr29icr23-ne.dat
adf27/dr/nlike/nrb00#n/kr29icr23-no.dat
adf27/dr/nlike/nrb00#n/kr29icr23_str.dat
adf27/dr/nlike/nrb00#n/mg5ic22-2.dat
adf27/dr/nlike/nrb00#n/mg5ic22_n.dat
adf27/dr/nlike/nrb00#n/mg5ic22_str.dat
adf27/dr/nlike/nrb00#n/mg5ic23-3e.dat
adf27/dr/nlike/nrb00#n/mg5ic23-3o.dat
adf27/dr/nlike/nrb00#n/mg5ic23-ne.dat
adf27/dr/nlike/nrb00#n/mg5ic23-no.dat
adf27/dr/nlike/nrb00#n/mg5ic23_str.dat
adf27/dr/nlike/nrb00#n/mg5ic23-3o.dat
adf27/dr/nlike/nrb00#n/mg5ic23-ne.dat
adf27/dr/nlike/nrb00#n/mg5ic23-no.dat
adf27/dr/nlike/nrb00#n/mn18ic23-3e.dat
adf27/dr/nlike/nrb00#n/mn18ic23-ne.dat
adf27/dr/nlike/nrb00#n/mn18ic23-no.dat
adf27/dr/nlike/nrb00#n/mo35icr23-3o.dat
adf27/dr/nlike/nrb00#n/mo35icr23-ne.dat
adf27/dr/nlike/nrb00#n/mo35icr23-no.dat
adf27/dr/nlike/nrb00#n/ne3ic23-3o.dat
adf27/dr/nlike/nrb00#n/ne3ic23-ne.dat
adf27/dr/nlike/nrb00#n/ne3ic23-no.dat
adf27/dr/nlike/nrb00#n/ni21ic23-3e.dat
adf27/dr/nlike/nrb00#n/ni21ic23-ne.dat
adf27/dr/nlike/nrb00#n/ni21ic23-no.dat
adf27/dr/nlike/nrb00#n/o1ic2-2+3.dat
adf27/dr/nlike/nrb00#n/o1ic2-2+3_str.dat
adf27/dr/nlike/nrb00#n/p8ic22-2.dat
adf27/dr/nlike/nrb00#n/p8ic22-3.dat
adf27/dr/nlike/nrb00#n/p8ic22-3o.dat
adf27/dr/nlike/nrb00#n/p8ic22-3_str.dat
adf27/dr/nlike/nrb00#n/s9ic2-2.dat
adf27/dr/nlike/nrb00#n/s9ic2-3.dat
adf27/dr/nlike/nrb00#n/s9ic2-3o.dat
adf27/dr/nlike/nrb00#n/s9ic2-3_str.dat
corresponding to new N-like nrb00 adj09 files.

D.25 Added files:

- adf28/dr/nlike/nrb00#n/al6ic22.dat
- adf28/dr/nlike/nrb00#n/al6ic23.dat
- adf28/dr/nlike/nrb00#n/al6ls22.dat
- adf28/dr/nlike/nrb00#n/al6ls23.dat
- adf28/dr/nlike/nrb00#n/ar11ic22.dat
- adf28/dr/nlike/nrb00#n/ar11ic23.dat
- adf28/dr/nlike/nrb00#n/ar11ls22.dat
- adf28/dr/nlike/nrb00#n/ar11ls23.dat
- adf28/dr/nlike/nrb00#n/ca13ic22.dat
- adf28/dr/nlike/nrb00#n/ca13ic23.dat
- adf28/dr/nlike/nrb00#n/ca13ls22.dat
- adf28/dr/nlike/nrb00#n/ca13ls23.dat
- adf28/dr/nlike/nrb00#n/co20ic22.dat
- adf28/dr/nlike/nrb00#n/co20ic23.dat
- adf28/dr/nlike/nrb00#n/co20ls22.dat
- adf28/dr/nlike/nrb00#n/co20ls23.dat
- adf28/dr/nlike/nrb00#n/cr17ic22.dat
- adf28/dr/nlike/nrb00#n/cr17ic23.dat
- adf28/dr/nlike/nrb00#n/cr17ls22.dat
- adf28/dr/nlike/nrb00#n/cr17ls23.dat
- adf28/dr/nlike/nrb00#n/fe19ic22.dat
- adf28/dr/nlike/nrb00#n/fe19ic23.dat
- adf28/dr/nlike/nrb00#n/fe19ls22.dat
- adf28/dr/nlike/nrb00#n/fe19ls23.dat
- adf28/dr/nlike/nrb00#n/k12ic22.dat
- adf28/dr/nlike/nrb00#n/k12ic23.dat
- adf28/dr/nlike/nrb00#n/k12ls22.dat
- adf28/dr/nlike/nrb00#n/k12ls23.dat
- adf28/dr/nlike/nrb00#n/kr29icr22.dat
- adf28/dr/nlike/nrb00#n/kr29icr23.dat
- adf28/dr/nlike/nrb00#n/mg5ic22.dat
- adf28/dr/nlike/nrb00#n/mg5ic23.dat
- adf28/dr/nlike/nrb00#n/mg5ls22.dat
- adf28/dr/nlike/nrb00#n/mg5ls23.dat
- adf28/dr/nlike/nrb00#n/mn18ic22.dat
- adf28/dr/nlike/nrb00#n/mn18ic23.dat
- adf28/dr/nlike/nrb00#n/mn18ls22.dat
- adf28/dr/nlike/nrb00#n/mn18ls23.dat
- adf28/dr/nlike/nrb00#n/mo35icr22.dat
- adf28/dr/nlike/nrb00#n/mo35icr23.dat
- adf28/dr/nlike/nrb00#n/na4ic22.dat
- adf28/dr/nlike/nrb00#n/na4ic23.dat
- adf28/dr/nlike/nrb00#n/na4ls22.dat
D.26 Replaced \textit{adf09/nrbjc00\#li/jc00\#li_xe51icr23.dat} with a new file. The old file contained 2-2 data despite the filename. Note also that the replacement file was badly formatted so had to be edited by hand as all of the \textit{jc00} files were in 2002.

D.27 DR calculations for O-like Mg, Cl, Ca and Sc had used observed energies in eV in the original calculations but the processing codes treat energies as being in Rydbergs by default. The appropriate keyword was set and the calculations re-ran, the old data have been removed. Specifically, removed:

\begin{verbatim}
  adf28/dr/olike/oiz00\#o/ca12ic22.dat
  adf28/dr/olike/oiz00\#o/cl9ic22.dat
  adf28/dr/olike/oiz00\#o/mg4ic22.dat
  adf28/dr/olike/oiz00\#o/sc13ic22.dat
\end{verbatim}

 correspong to new N-like nrb00 adf09 files.
D.28 Incorrect donor labels were introduced in some \textit{adf12} datasets in the last release. The H($n=2$) and He(2 1S) and He(2 3S) were both identified as 1S. The data is correct. Datasets in \textit{adf12/qef97#h} and \textit{adf12/qef97#he} were affected.

Finally, I look forward to seeing as many of you as possible at the ADAS Workshop at Cosener’s House in Abingdon on 12-14 November.

HPS
04 Sept. 2006