Update on Q-AMS Data Acquisition
Software Status

Current Software Version: V 4.6

Software versions that are most widely distributed right now: AMS Versions V 4.5.9, 4.4.4. and 4.3.mode

Updated Features include:

- Fixed bug on JMS mode, pointed out by Jonny Crosier, in which the AB in JMS mode was lower than in MS and PTOF modes.
- Added new TSI CPC types as option including switch between old and new CPC types
- Eddy Correlation additions

* For most applications, there is very little different difference between the two

I recommend that you all update to V 4.6!
Downloading AMS DAQ Software

1) Aerodyne ftp site:
   AMSIncoming\AMSUsers\ALLUsers\AMSSoftware

2) Jose’s Q-AMS Web Page
   http://cires.colorado.edu/jimenez-group/QAMSResources/

You will be prompted for the Username/Password combination for both these sites
Jump MS Data
Acquisition Description

Jump Mass Spectrum Operation
Jump MS mode

- Like MS mode, but scanning only a few m/z
- Like “selected ion monitoring” (SIM) in GC-MS

S/N Improvement in Jump-MS

Flight Data Courtesy of J. Crosier (UMIST)
10 Hz Jump Mode Sensitivity

\[ F_N = w' \chi_N = w \chi_N - w \chi_N \]

Example Time-Series Measured with AMS (Urban Emission of NO₃⁻)
Courtesy E.Nemitz (CEH, Scotland)
Obtained with Eddy Type2 Mode programmed by Jose Jimenez

Jump-MS Screen

NOTES:
• In data acquisition boards menu tab the acquisition rate for JMS needs to be specified for the JMS Mode.
• Scanned m/z’s are from F6 Screen Settings. First m/z scanned provides DC level. So it should be one with no particle signal.
• Data is saved in JMS.itx (Analogous to MS.itx)
General Alternation Mode
(“GENALT”)

- Alternate TOF, MS, JMS
  - Or any two of them
  - Variable time for each mode

- Implemented as separate mode from old TOF-MS alternate mode

- At present (v. 4.4.8) both modes work
  - In future probably only support GENALT
Useful Background Information
For
AMS Data Acquisition Program

AMS Software problems

1) Check Menu (especially if problem is sudden)
   – Gets corrupted if program crashes or is exited in non-standard way
   – At least 50% of problems are due to this
   – C:\AMS\AMSCode\AMSMenu.prm
   – A copy is saved on AMSLogFiles directory
     (C:\AMS\AMSData\AMSLogFiles) every day you use the program (i.e. 041011_Menu.prm for today’s menu)
   – Also saved in every ITX file (“par” and “ParStr”)
   – Compare you current menu with a known good one side-by-side in Excel
   – Make backups of known good menus
AMS Software problems

2) Runtime Error # 6
   - Typically occurs in TOF mode only not in MS mode. It is often because of a drop out of the chopper signal.
   - Chopper signal can drop out if bad lsignal coming from diode or chopper wheel is not spinning when chopper servo moves through the block/chop/open cycles
   - Software crash due to this error will be prevented in future software versions
3) Check TOF velocity calibration. This can cause “division by zero” issues

Most Current Software problems due to either menu corruption or Chopper signal issues!

Troubleshooting Software Problems

Information Needed:

1) Software version
2) Exact error message
3) Operating mode (Alternating, TOF Mode only, LS On…)
4) What mode the error occurs in (TOF/MS/JMS)
5) Any keystrokes that may have caused error
6) AMSMenu.prm
Downloading Application Setup Program

- You MUST update the Application Setup Program to the Win2K Version in order to run new version of AMS program.

The Win2K Application Setup can be downloaded from the ARI FTP site in the following folder:

AMSIncoming\AMSUsers\ALLUsers\AMSSoftware\Installs\Win2KInstalls OR

http://cires.colorado.edu/jimenez-group/QAMSResources/

Installing Application Setup Program

1) Uninstall previous Application Program
   - go to Start\Settings\ControlPanel\AddRemoveSoftware
   - Remove Program called AMS

2) Install the Win2000 Application Program
   - Shut down all other programs
   - Go to copy of Win2KInstalls folder and start the Setup.exe

NOTE: Ignore the message that reports a conflict with the shdocvw.dll
Software Requirements During Field Campaigns

CD's containing the following files should be available:

1) NIDAQ Software
2) AMS Application Setup Folder from ftp site
3) AMSMenu.prm and AMSID.prm files.

AMS Program Requirements

1) Pre-installation of the appropriate AMS Application Setup Program
2) Pre-installation of the NIDAQ Software for slow/fast Data Acquisition Boards

**NOTE:** The NIDAQ EXAMPLES FILE MUST ALSO BE INCLUDED IN INSTALLATION

- NIDAQ installation process places files accessed by AMS program (i.e. NIDAQ32.dll and NIDEX32.dll) in C:\winnt\System32 folder.

3) The computer C drive must contain a C:\AMS\AMSCode folder with the following files:
   a) AMSMenu.prm
   b) AMSID.prm files.