

VIEWS

International SAS Programmer Community



News, Hints, Tips and Information for SAS® Users

Issue 36, 4th Quarter 2006

As promised, you'll be able to read conference reports from 3 SAS-related events in Prague (SASTek), Dublin (PhUSE) and Birmingham (SAS Forum UK) in this issue of *VIEWS News*, including a report from a new *VIEWS* consultant, Neville Cope.

In this issue of *VIEWS News* I have again included 3 articles from well-known sources: another graphical tip from LeRoy Bessler, and some more useful tips from the Amadeus Software Consultancy Team. I hope you will find them all interesting and helpful.

If you would like to contribute an article, or discuss the possibility of doing so, please send an email to me at newsletter@views-uk.org. A list of possible subjects for your articles can be found on the *VIEWS* web site, and anyone is very welcome to add to that list by sending emails with your own questions to newsletter@views-uk.org.

Philip R Holland (Newsletter Editor)

Membership of *VIEWS* is **free** and you can register for notification of all future *VIEWS* events by emailing us at membership@views-uk.org, making certain you include your name and postal address. If you would like to receive email notification whenever a new issue of the free quarterly *VIEWS News* is published on the web site, please remember to also include your email address.

Did You Know?

If you have a useful hint or tip, please send it to the Editor, and share it with the VIEWS membership.

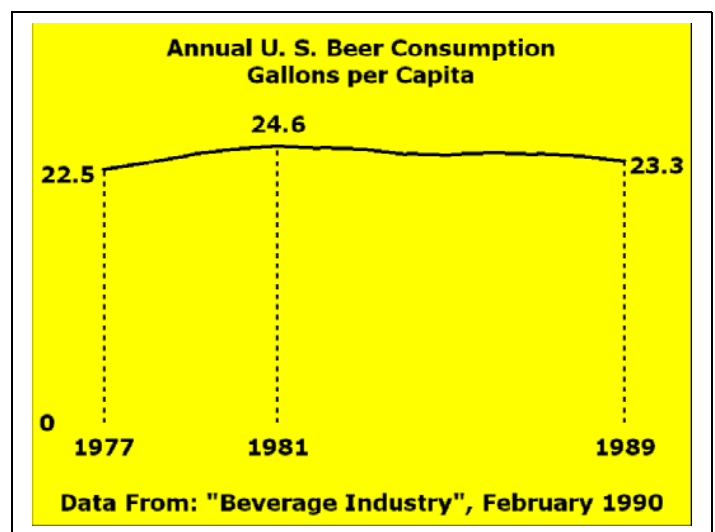
The Power of Simplicity: Sparse Annotation

If you are web publishing a trend line, it is not very difficult to provide a box of pop-up text at each data point, no matter how dense or jagged a plot, to temporarily display the precise values. For a trend with not too many plot points, it may be easy to determine the precise x-value without pop-up text, but the y-value is always a visual estimate.

The POINTLABEL option on the SAS/GRAPH SYMBOL statement will lay down a permanent display in the plot area, but it has not been optimized to avoid collisions with the line, even on a not very complex plot. I have published elsewhere a macro that is more reliable than POINTLABEL, when you need to statically annotate every plot point (e.g. for a Word document or PowerPoint presentation). However, there are times when a different and simpler solution may be suitable.

About fifteen years ago, I coined the term “**Sparse Annotation**”. For some purposes, you do need to know the exact x- and y-value of every plot point. That is really best addressed with a table. A graph is a visual tool to accelerate and facilitate inferences – to answer the question: “Is the current trend up or down, and what does the history look like, in its general aspects?” I contend that often there are only a few plot points of great interest (e.g. Start, End, Maximum, and Minimum), in which case I recommend a design (Figure 1) to **Show Them What’s Important**.

Figure 1. Sparsely Annotate Only the Start, Maximum, and End Points



NOTE 1: Unless there is a compelling business need to examine the vibrations in a trend line, my recommendation is to start the vertical axis of a trend plot at zero. To allow the actual range of the data to fill up the vertical display space can encourage unjustified anxiety or elation about what are merely minor variations. You can specify VZERO on the PLOT statement, if you are not coding an explicit AXIS statement.

NOTE 2: The entire graph is “Sparse”. The graph omits not only the axis lines, but also any extra tick mark values that would add absolutely nothing to the meaning and message of the graph. Since the y-values are described in the graph subtitle, and since the x-values are obviously years, the graph also omits axis labels. **“Let the data talk.”**

Here is the code used to create the graph:

```
DATA INDATA;  
  INPUT YY MEASURE;  
  DATALINES;  
77 22.5  
78 23.1  
79 23.8  
80 24.3  
81 24.6  
82 24.4
```

```

83 24.3
84 23.9
85 23.8
86 24.0
87 23.9
88 23.7
89 23.3
RUN;

DATA ANNODATA;
  WHEN = 'A'; XSYS = '2'; YSYS = '2';
  HSYS = '4';
  COLOR = 'CX000000'; /*black lines and text*/
  /*Draw lines from x-axis to data points*/
  LINE = 33; SIZE = 2; /*line type+thickness*/
  LENGTH FUNCTION $8 TEXT $4;
  /*Place "Pen" with MOVE at initial
  coordinates, and then DRAW line to the
  final coordinates.*/
  X = 77; Y = 0; FUNCTION = 'MOVE'; OUTPUT;
  Y = 22.5; FUNCTION = 'DRAW'; OUTPUT;
  X = 81; Y = 0; FUNCTION = 'MOVE'; OUTPUT;
  Y = 24.6; FUNCTION = 'DRAW'; OUTPUT;
  X = 89; Y = 0; FUNCTION = 'MOVE'; OUTPUT;
  Y = 23.3; FUNCTION = 'DRAW'; OUTPUT;
  /*Now annotate the data points*/
  FUNCTION = 'LABEL';
  STYLE = "'Verdana/Bold'"; SIZE = 2.5;
  X = 76.8; Y = 22.5; POSITION = '4';
  TEXT = '22.5';
  OUTPUT; /*but plot point is at X=77*/
  X = 81; Y = 24.6; POSITION = '2';
  TEXT = '24.6';
  OUTPUT;
  X = 89.1; Y = 23.3; POSITION = '6';
  TEXT = '23.3';
  OUTPUT; /*but plot point is at X=89*/
RUN;
  /*POSITIONs 4 & 6 are left & right of data,
  but extra shifts are applied for labels.*/

GOPTIONS RESET = ALL;
GOPTIONS DEVICE = GIF GSFNAME = GRAPHOUT
  GSFMODE = REPLACE CBACK = CXFFFF00 BORDER
  FTEXT = 'Verdana/Bold' HTEXT = 2.5
  CTEXT = CX000000;

FILENAME GRAPHOUT "C:\VIEWS36\SparseAnno.gif";

TITLE1 H = 1 ' ';
TITLE2 H = 2.5 F = 'Verdana/Bold' C = CX000000
  J=C 'Annual U. S. Beer Consumption';
TITLE3 H = 2.5 F = 'Verdana/Bold' C = CX000000
  J=C 'Gallons per Capita';
TITLE4 H = 3 ' ';

FOOTNOTE1 H = 1 ' ';
FOOTNOTE2 H = 2.5 F = 'Verdana/Bold'
  C = CX000000 J = C
  'Data From: "Beverage Industry", February 1990';
FOOTNOTE3 H = 1 ' ';

SYMBOL1 C = CX000000 I = JOIN V = NONE W = 3;

AXIS1 ORDER = 77 TO 89 BY 1
  VALUE = ('1977' ' ' ' ' ' ' ' ' '1981'
  ' ' ' ' ' ' ' ' ' ' '1989')
  OFFSET = (7 PCT, 10 PCT) STYLE = 0
  LABEL = NONE MAJOR = NONE MINOR = NONE;
AXIS2 ORDER = 0 TO 24.6 BY 24.6
  VALUE = (J = R '0' ' ' ' ') STYLE = 0
  LABEL = NONE MAJOR = NONE MINOR = NONE;

```

```

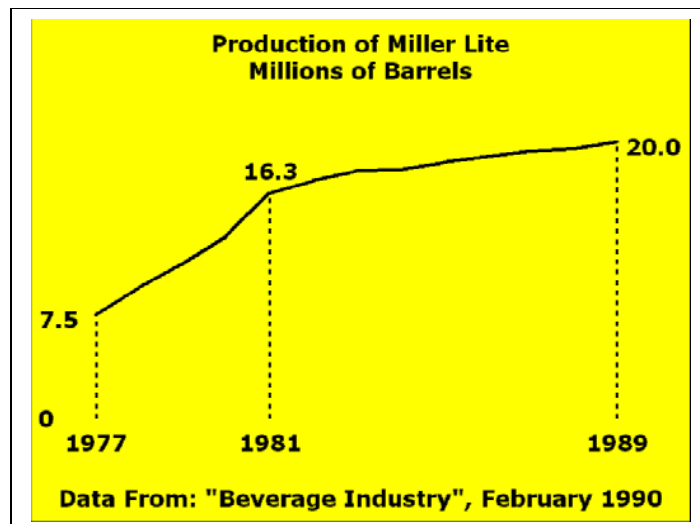
PROC GPLOT DATA = INDATA ANNO = ANNODATA;
  PLOT MEASURE * YY / HAXIS = AXIS1
  VAXIS = AXIS2;

RUN;
QUIT;

```

The trend plot in Figure 2, also from my days in the beer industry, has a key point of interest that is not a start, end, maximum, or minimum. It is where a conspicuous and permanent change in trend occurred, and which was discovered by inspection of a draft graph.

Figure 2. Sparsely Annotate the Start, Trend-Change, and End Points



Since SAS knows how to find the first and last data points, and any maximum or minimum, it is easy to automate the entire graph creation process, and to avoid hard-coding for the ANNOTATE data set and the AXIS statements. For a macro that can do such Sparse Annotation, and can optionally make full annotation more resistant to collision than the SAS/GRAPH POINTLABEL option, please see my SUGI 27 paper (with Dr Francesca Pierri) on %TREND, at www.lexjansen.com.

LeRoy Bessler, Assurant Health

Using the SLEEP Function on Different Operating Systems

Consider using the SLEEP() function on Windows to delay the start of a job. Some development is done locally on Windows and remotely on UNIX servers, but SLEEP() with a single argument does not work the same on UNIX, since the system clock operates in units of milliseconds – therefore requiring a workaround based on value of the automatic system macro variable &sysscp.

```

DATA _NULL_;
  *sleep for 2 minutes on Windows
  OR 120 milliseconds on UNIX;
  r = SLEEP(120);
  CALL SLEEP(120);
RUN;

%MACRO sleepeasy(seconds);
  DATA _NULL_;
    *sleep for 2 minutes on Windows
    OR 120,000 milliseconds (i.e. two minutes)
    on UNIX;

```

```
%IF &sysscp. = WIN %THEN %DO;
  r = SLEEP(&seconds.);
  CALL SLEEP(&seconds.);
%END;
%ELSE %DO;
  *convert to milliseconds;
  s = &seconds. * 1000;
  r = SLEEP(s);
  CALL SLEEP(s);
%END;
RUN;
%MEND;

%sleepeasy(120)
```

This author only realised of late that the SLEEP() function actually takes two arguments – the second being the number of units used in seconds. I'm not sure how long this has been around – it is not in the SAS 8 OnlineDoc, but is within the in-line version! Anyway, using the second argument ensures that it is always OS independent – SAS staying true to it's roots!

```
DATA _NULL_;
  *force sleep for 2 minutes regardless of
  platform;
  CALL SLEEP(120, 1);
  r = SLEEP(120, 1);
RUN;
```

Amadeus Software Consultancy Team

Ask The Consultant

This part of VIEWS News is where you can get your technical questions answered. Send your questions to the Editor.

Finding Maximum Display Sizes for Graphics

Q: How can you find the maximum dimensions of a graphics device?

A: In interactive operation, PROC GDEVICE will tell us everything we need about our graphics device, but it can be harder for a program to access some of this information. In some cases the only way to do it seems to be to use an often forgotten component of SAS, the Data Step Graphics Interface (DSGI). Here is an example, in which we discover the maximum dimensions for a plot that uses the CGM driver:

```
GOPTIONS DEVICE = CGM;

DATA _NULL_;
  rc = GINIT();
  CALL GASK('MAXDISP', units, x_m, y_m,
           x_pixel, y_pixel, rc);
  m_per_in = 0.0254;
  x_in = ROUND(x_m / m_per_in, 0.001);
  y_in = ROUND(y_m / m_per_in, 0.001);
  CALL SYMPUT('x_in', x_in);
  CALL SYMPUT('y_in', y_in);
  rc = GTERM();
RUN;
```

Here the call to GINIT initialises DSGI, and GTERM terminates it. We request the information we need using the MAXDISP option of the GASK function. The nature of the values returned here is a little quirky. The **units** variable will always be 1, which is DSGI's way of telling us that the next two

parameters are measured in metres. The two following are in pixels. Our code converts from metres to inches and creates macro variables containing the values. Macro variables **&x_in** come out as 8.5 and **&y_in** as 11; these are the correct values, as PROC GDEVICE will confirm.

Many other attributes of graphics devices can be obtained using DSGI in similar ways.

Amadeus Software Consultancy Team

Formats, Options, and Functions

This section is devoted to the description of useful, or unusual, SAS Formats, Options, and Functions.

This issue's section is made up of descriptions from SAS 8 or earlier. The **Dw.s** SAS format writes numbers so that the decimal point aligns in groups of values with similar magnitude. It writes numbers with the desired precision and more alignment than the **BESTw.** SAS format. The **w.d** SAS format aligns decimal points, if possible, but does not necessarily show the same precision for all numbers.

The **-AUTOEXEC** command line option overrides the file used as the “autoexec” program when SAS starts a session. Without this option SAS uses the **autoexec.sas** file in the current working directory. However, it is only valid when SAS is started as a batch or interactive session. If SAS is started by an Object Spawner, e.g. by Enterprise Guide, then this option is ignored and no “autoexec” program is used at all!

The **SUBSTR()** function is not typical of the functions supplied with Base SAS, as it can be used on the right-hand side of assignment statements like other functions, and can be used on the left-hand side too. When used on the right-hand side it returns a sub-string of its first argument. When used on the left-hand side it substitutes the selected sub-string in its first argument with the string on the right-hand side of the assignment statement. Strange, but useful!

Stop Press!

Technical Event in London on 12 December

You are invited to attend a full day of in-depth technical presentations by leading independent experts (including 3 *VIEWS* consultants!) on the latest in SAS Software tools. Delegates will hear presentations on ODS, SAS programming efficiency, macro language topics and other key aspects of the SAS System. The agenda includes presentations for SAS users of all experience levels and across all operating systems. The registration fees include printed/bound copies of the presentations, continental breakfast, lunch and afternoon refreshments.

Venue: MIC Hotel and Conference Centre, 81-103 Euston Road, London NW1 2EZ

Date: 12 December 2006

Speakers:

Peter Crawford (Crawford Software Consultancy, UK)
 Philip Holland (Holland Numerics, UK)
 Andrew Karp (Sierra Information Services, USA)
 Phil Mason (Wood Street Consultants, UK)

Fees: £120 + 3% currency exchange fee. Early registration discounts are available before 1 December.

Full details and agenda: at www.technical-event.co.uk.

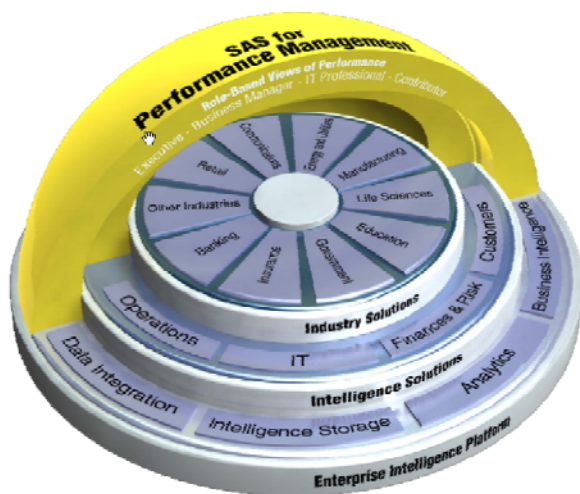
Philip R Holland (Newsletter Editor)

News

SASTek 2006 in Prague

The SASTek 2006 conference was held in the beautiful city of Prague on 6-8 September 2006. For those not aware, SASTek is a conference designed for European partners, in order to keep them up to date with the latest SAS developments, both in terms of technology and business strategy. Conference attendees were fortunate in that the majority of presenters were from SAS EMEA/International Professional Services or SAS EMEA Strategy, with both departments close to new developments and well informed about SAS Institute's company direction. In general, this resulted in the presentations being of a good standard, complemented by a high level of technical knowledge to call upon if required. The conference itself was viewed by 130 attendees from various SAS partners from all corners of the continent. The event was chaired by Gloria Miller, VP SAS International Professional Services; with the conference focus being SAS solution, industry and platform offerings.

Their new diagram, referred to as the SAS Dome (see below) was the basis of many of the presentations. In fact, it appeared so regularly that perhaps setting it as the PowerPoint background would have saved SAS some time! However, it did help to deliver a consistent message; portraying SAS as an integrated platform for Performance Management.



The dome itself is designed to illustrate 'Role Based Views of Performance' across a whole spectrum of industries. It did remind this reviewer of the new Wembley stadium; although just in terms of appearance and not in terms of completeness! It is however somewhat spooky that Wembley could open at the same time as SAS 9.2 – perhaps Wembley could use “the Power of SAS” to add the finishing touches. Anyway, back to the conference....

The theme of Day 1 focused on an overview of the SAS Intelligence Platform and the various industry solutions that are built on this framework. Day 2 went into detail regarding the SAS 9 architecture and the application of this in project delivery.

From the afternoon of Day 2 onwards, the conference split into two streams: Technology and Solutions. The hands-on workshops were a particularly good idea, allowing partners to get their hands dirty with some of the SAS 9 front-ends, as well as a method of keeping attendees awake after lunch! These sessions were well received, with the only quibble being that they did not use the latest version of the software (e.g. DI Studio v3.3 was used instead of v3.4). However, this reviewer would prefer to applaud the concept; especially as the technical people on hand knew their stuff.

The best technical paper seen by this reviewer was presented by Ugo Sglavo, Product Manager SAS EMEA Strategy with his paper on SAS EIP products – Analytics. A quote from Ugo that lodged in the brain was “If I say Arima, do you feel scared?!?”. This attracted the audience's attention, which Ugo maintained with several case studies from the field of SAS Analytics. This included an illustration of how SAS Text Miner had been used at a South African bank suffering a spate of robberies. He then reported how Data Mining techniques had been utilized to predict the next branch to be hit. Over time this had resulted in a 41% reduction in robberies and a 38% saving in cash loss. Surely one of the coolest uses of SAS to date!

A summary of the key technical benefits discussed during the conference is as follows:

- BI Manager Plug-in v1.4
 - Partial Promotions streamline the development lifecycle both in terms of efficiency and speed
- Web Services
 - Calling web services with PROC SOAP
 - Real-Time Data Quality
 - Integration with Google One Box
- SPD Server
 - Multi-threaded query engine
 - Parallel where clause evaluation
 - Implicit/explicit SQL pass-through facility
 - Dynamic Clustering for read-only queries for sets of SPD server tables
- Other new features
 - Monitoring service collects metrics about server processes (v4.4)
 - SQL Formatted parallel Group-By
 - Libname option to auto-detect UNIX domains and Implicit pass-through

Overall, it was a very useful three days. Partners had the chance to speak to some significant players from SAS Europe, as well as networking with other users. The evening session at the brewery certainly contributed to the general bonhomie!

All attendees went home with free registration to a SAS 9 Intelligence Platform Administration e-Learning tutorial, along with a CD containing all presentations upon completion of a feedback form.

In summary, SASTek was a worthwhile conference both from a business and technology perspective. It gave an insight as to how SAS position the software, whilst also giving enough technical detail to keep wannabe SAS nerds such as this reviewer interested. Plus, the mixer session also proved once and for all that SAS really can organise a “networking event” in a brewery!

Amadeus Software Consultancy Team

SAS Forum UK 2006

The 2006 Annual SAS UK conference was held for the 3rd year running at the Hilton Metropole Hotel in Birmingham on 1-2 November, with over 400 attendees and 60 speakers. This year's event had a different format to previous years. Out went the half day of Special Interest Groups on Day 1, and in came an afternoon of 20 minute technical presentations in 8 streams (2 Partner sessions, Professional Services, Enterprise Intelligence Platform, Customer Intelligence, Financial Intelligence, Risk Intelligence and Operational Intelligence), most presented twice, in the Knowledge Zone. This format was familiar to anyone who had attended the recent SAS Forum International conferences. The main conference on Day 2 featured longer presentations in 4 streams (Enterprise Intelligence Platform, Customer Intelligence, Financial Intelligence and Risk Intelligence), with much less technical content than on Day 1. Over the 2 days there were also plenary sessions with John Dalton, Art Cooke, Prof Thomas Davenport, Gloria Miller and Mark Torr, and free, but over-subscribed, SAS certification exams!

The theme of the conference was "Building the Intelligence Enterprise", which was thoroughly covered! The presentation rooms were designed to get the audience close to the presenters, which worked very well, although the largest room was often sparsely populated. The Exhibition Area was better than last year with more stands arranged in a ring, and SAS staff manning the demonstration screen in the centre. The SAS Party on the first evening, misnamed the Networking Session as the music eventually became too loud to talk over, was very enjoyable all the same. Overall I found the event very useful and enlightening, and am waiting to see if SAS UK can improve it yet again!

Philip R Holland (Newsletter Editor)

PhUSE News

My PhUSE Conference 2006

I arrived in Dublin on the afternoon of Sunday 8 October, only to discover the hotel was a little further out of town than anticipated, and that there wasn't any rooms available yet. However, after taking a late lunch in the bar, I was finally able to check into my very comfortable room.

The conference facilities were very good and the 3 large presentation rooms were well equipped. I met up with the chairs of most of the streams later on in the afternoon, and then proceeded to complete the first half of my official duties at PhUSE this year: putting up my poster. There was plenty of board space, and the session went without hitch (helped along by a glass of wine).

The second half of my official duties was to present in the Data Management stream on the Wednesday, but this was a few days away...

The first day of the conference again went without any problems. The opening session was interesting, if a little long and dry in places, but set the scene for the next few days. I must confess to finding presentations at events like these to be a little hit and miss usually, but that wasn't the case this year. The standard of presentations was high, with a lot of different topics being covered at a variety of technical levels.

Highlights of the next two and a half days for me included a good refresher of annotate macros (TU05 "How to annotate graphics" by Sandrine Stepien), a complicated but fascinating look at writing your own functions in SAS (CS06 "Creating your own functions using SAS/Macro and SCL" by Edward Foster), and the fast-paced but very interesting "SAS 9 ODS Reporting In For Business!" by Ian Amaranayake, which satisfied my inner geek with lots of new SAS 9 ODS tips.

The most surprising highlight for me came on Wednesday morning, where I was scheduled to present in the opening 0900hr slot. After worrying, rehearsing endlessly and generally stressing about the whole thing, I have to say that actually presenting was quite painless. Everything was set up fine with no technical hitches, my section chair was very supportive and the paper was well received.

Following this, at the wrap-up session at the end of the conference I won "Best Paper in Category", which was a pleasant surprise!

All in all I felt it was a successful conference, was extremely well organised and had a very good mix of interesting papers – no small feat considering it was only the second PhUSE conference! I would say to anybody out there who is undecided about whether to attend the next PhUSE to come along and see what you've missed the past two years – and if there's any possibility that you could present (even if it's only a poster) then you should give it a try. It's a rewarding and exciting experience!

Neville Cope, Amgen

In Brief

- Back issues of *VIEWS News* are available from the *VIEWS* web site.
- Phil Mason now has a SAS tips newsletter, which can be requested by going to www.woodstreet.org.uk and then clicking on Tips. Previous tips can also be found on the web site.
- More SAS hints and tips can be found on the SAS FAQ pages www.hollandnumerics.com/sasfaq and also on the Amadeus Software Tips pages at www.amadeus.co.uk/knowledge/tips/index.php.
- Looking for a SAS-related job? Try the following web pages: www.hollandnumerics.com/careers and www.amadeus.co.uk/about/jobs.php.

Diary

Are you organising an event that would be of interest to the VIEWS readership? Let us know as we are interested in all non-profit making events related to SAS.

December 2006

5 **Tricks of the Trade**, Edinburgh

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

12 **Technical Event for SAS Software Users**, London

A full day of in-depth technical presentations by leading independent experts. For more details please visit the web site, www.technical-event.co.uk.

March 2007

29 **How-To Seminar for SAS Programmers**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

April 2007

16-19 **SAS Global Forum**, Orlando, USA

The SAS Global Forum (formerly called SUGI) is held each year and focuses on the technical aspects of SAS software.

May 2007

22-24 **SAS Forum International**, Stockholm, Sweden

The SAS Forum International is held each year and focuses on the more commercial aspects of SAS software.

July 2007

12 **How-To Seminar for SAS Programmers**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

October 2007

8-10 **PhUSE**, tba

The Pharmaceutical Users Software Exchange (PhUSE) conference is the premier programming event for the pharmaceutical industry in Europe.

25 **How-To Seminar for SAS Programmers**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

December 2007

4 **How-To Seminar for SAS Programmers**, Oxfordshire

See the Amadeus Software web site, www.amadeus.co.uk, for further details.

All VIEWS event information will be posted and/or emailed to registered members of VIEWS, and will include an event application form. Please send your queries about any VIEWS events to event@views-uk.org, and don't forget to look at the web site for the latest news.

Contacts

Amadeus Software

Email: info@amadeus.co.uk
Tel: +44-(0)1993-878287
Web: www.amadeus.co.uk

Neville Cope
Amgen

Email: nevillec@amgen.com

LeRoy Bessler
Assurant Health,
Milwaukee, USA

Email: bessler@execpc.com

PhUSE

Web: www.phuse.info

SAS UK

Tel: +44-(0)1628-486933
Web: www.sas.com/uk

VIEWS

Web Site

Web: www.views-uk.org

Chairman

Email: chair@views-uk.org

Newsletter Editor

Email: newsletter@views-uk.org

Membership secretary

Email: membership@views-uk.org

Events secretary

Email: event@views-uk.org

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