

# Book Review

## Vertical Aerial Photography and Derived Digital Imagery: Client Specification Guidelines

*Anon. RICS Business Services Limited (a wholly owned subsidiary of The Royal Institution of Chartered Surveyors under the RICS Books imprint, Coventry), 2001. ISBN 0 85406 997 6 (paperback, saddle stitched) 298 x 217mm. v + 53 pages. Price £30.00. Floppy disk £40.00.*

*Reviewed by Peter Byrne, AAM Surveys Pty Limited, Australia, E-mail: P.Byrne@aamsurveys.com.au*

Aerial photographers, through their experience and close association with the mapping technologies, are arguably the most appropriate people to prepare sensible technical specifications for acquisition of aerial photography. However, the commercial world being as it is, client organisations feel the need to keep distance between themselves and their aerial photography contractors, particularly if there is competition through the tendering process. Consequently, aerial photographers often find themselves competing for projects which are under-specified, over-specified or inappropriately specified. In these circumstances, potential contractors have to second-guess client needs, or to consider less than best practices that will conform technically with the specification, knowing that competitors will do likewise. Thus, outcomes may not fully satisfy client objectives and the aerial photographer's professional standards may be compromised. No one wins.

This publication aims at overcoming the problems of inadequate technical specifications by guiding a potential purchaser of aerial photography and derived products through preparation of a technical specification.

The document has been thoughtfully arranged in sections which separate the elements of the process: Project Information, Camera Equipment, Flying and Photo Coverage, Film and Photographic Products, Digital Imagery, Documentation and Storage, Preservation. Under each of these headings the elements of a specification are listed on the right of the binding, some with options and others not. Explanatory notes are on the left of the binding. This layout is very effective. An example from the first section - Project Information - is:

### **Specification 1.1.1 Purpose of Project**

*The Project Objective is to provide photography to enable the following work to be carried out by the client  
...*

### **Explanation**

*This information is critical in guiding the Contractor in interpretation of the requirement and the Specification. The photography needs to be fit for pur-*

*pose and may be required for one or more uses including photogrammetric mapping, raster scanning, digital orthophotomapping, land use and land cover interpretation.*

This extract provides one example of the well-balanced quality of the work. These few words convey: an expectation that the photographer will be more than a mere faithful follower of technical processes; and protection of the interests of the client through inclusion of the three words which are the essence of a reasonable contract - "fit for purpose".

The book refers to the Specifications for Vertical Aerial Photography presented to ISPRS in 1980 and amended in subsequent meetings. It takes note of the developments since the eighties such as GPS control of air stations and the shift to digital imagery. It is a natural extension of the earlier work.

The Guidelines are admirable in their focus on outcome rather than process. The book is particularly thorough in its treatment of the many options of execution and output which are available. Yet, in this respect it is uneven.

The section on Airborne GPS includes an option to determine camera station coordinates at an accuracy suitable for the relevant scale of derived mapping. It then specifies that "the coordinate accuracy (precision?) shall be better than +/- 20centimetres when used for photo control", so reverting to the doctrinaire approach which the Guidelines are seeking to improve. Photographic scale and baseline distance are not mentioned in the explanatory notes. Interestingly, the Glossary of Terms contains many GPS-related terms which do not appear in the text. It is as if the section on GPS was intended to be far more comprehensive and instructive, as the subject demands, but was not completed.

I was similarly surprised to find in the explanatory notes that common lens choices (88, 210 or 306mm) were referred to as being available for "selection by the contractor if the project or area conditions make this desir-

able".As the Guidelines are intended for use by clients as well as aerial photographers, an explanation about the options for improving object visibility with long lenses and vertical measurement accuracy using shorter lenses as an important consideration in project design, is missing.

In drafting technical specifications, it is not possible to make all tolerances and limits variable according to the project objective, and the authors have recognised this. Specified tolerances such as for camera orientation, camera calibration and metric film quality are achievable industry norms.

The section on Digital Imagery, unlike that for Airborne GPS, is complemented with detailed and useful explanatory notes relating to scanning photo scale and pixel sizes. This section covers Digital Mosaics and touches on Digital Orthophotography. The Introduction and User Guide earlier indicated that it does not extend to a specification for orthophotomaps, yet it does do so, to some extent, in 5.2.4. Interestingly, a distortion tolerance of 5mm at production scale is given for mosaics and none for orthophotomaps. The explanation of orthophotomaps recognises the many variables, particularly those relating to the terrain model used in the rectification process. I was left wondering if the Guidelines should have stopped with the Digital Mosaic, referring all "mapping" specifications to another document.

The sections on documentation and storage are comprehensive and very useful. I was particularly taken by the treatment of Ownership and Copyright, issues which can be vexatious when not properly dealt with at the start. An Appendix of inclusions and changes to the RICS Terms and Conditions of Contract is thoughtful.

In summary, this is a valuable work which has the potential to benefit practitioner and client, and the business relationship between them. It is uneven in those parts that deal with GPS and digital imagery, the subjects of most recent rapid change. In its own way, it is a demonstration of the blurring of the once clear boundaries that separated the sub-disciplines of photography, photogrammetry and surveying.

Some years ago, I was involved in preparing a comprehensive specification for aerial photography, airborne GPS control and derived products. This publication would have considerably reduced my work. It occurs to me that the authors may consider, for future editions, options for demonstrating, to non-expert clients, proof that technical specifications have been met.

Emanating from the RICS, this publication is another reminder of the value of professional societies to those who are in the business.

## ISPRS Events Calendar

### 18 January 2003 Version

Note: ISPRS Sponsored Events are logo Highlighted

**New entries and changes are bold highlighted**

For up-to-date updates - visit the ISPRS Web Page [www.isprs.org/calendar.html](http://www.isprs.org/calendar.html)

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P = Telephone    F = Facsimile    E = E-mail    tbr = to be resolved    WG = Working Group

<b>2 0 0 3</b>			
<b>DATE</b>	<b>EVENT</b>	<b>SITE</b>	<b>CONTACT</b>
30 June – 11 July 2003	23rd IUGG General Assembly "IUGG 2003" <a href="http://www.jamstec.go.jp/jamstec-e/iugg/index.html">http://www.jamstec.go.jp/jamstec-e/iugg/index.html</a>	Sapporo, JAPAN	Secretariat F: +81-468-66-5541 E: <a href="mailto:IUGG_service@jamstec.go.jp">IUGG_service@jamstec.go.jp</a>
1-3 July 2003 <i>Confirmed by Council</i>	 WG V/4 & IC III/V Workshop "Vision Techniques for Digital Architectural and Archaeological Archives"  <a href="http://www.ing.unian.it/struttura/fimet/fangi/workshopisprs2003/workshopisprs2003.htm">http://www.ing.unian.it/struttura/fimet/fangi/workshopisprs2003/workshopisprs2003.htm</a>	Ancona, ITALY	Hirofumi Chikatsu (Chair WG V/4) E: <a href="mailto:chikatsu@g.dendai.ac.jp">chikatsu@g.dendai.ac.jp</a> Gabriele Fangi (Co-chair WG V/4) P: +39-71-2204742/F: -71-2204729 E: <a href="mailto:fangi@popcsi.unian.it">fangi@popcsi.unian.it</a> <a href="mailto:fangi@mta01.unian.it">fangi@mta01.unian.it</a> <a href="mailto:fangi@unian.it">fangi@unian.it</a>
9-11 July 2003 <b>"NEW"</b> <i>Confirmed by Council</i>	 <b>WG II/3, IV/2 &amp; IV/4 Joint Workshop on Advances in Spatial Data Infrastructures &amp; Database Interoperability</b>  <b>(web site not ready)</b>	Southampton, UK	Dr. David Holland (Co-chair WG IV/4) P: +44-23-8079-2808/F: -2078 E: <a href="mailto:dholland@ordsvy.gov.uk">dholland@ordsvy.gov.uk</a>
10-11 July 2003	ISEIS 2003 Annual Conference on Systems Science and Information Technology for Environmental Applications  <a href="http://www.iseis.org">www.iseis.org</a>	Regina, CANADA	Prof. Dr. Gordon Huang P: +1-306-585-4095/F: -585-4855 E: <a href="mailto:gordon.huang@uregina.ca">gordon.huang@uregina.ca</a>

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DATE	EVENT	SITE	CONTACT
16-18 July 2003 <b>"NEW"</b> <i>Confirmed by Council</i>	 <b>WG III/2 &amp; III/8 Workshop "From surface reconstruction to 3D scene analysis in digital imagery: theory, applications and evaluation"</b>  <b>(web site not ready)</b>	Paris, FRANCE	Nicolas Papanoditis (Chair WG III/8) T: +33-143988392 F: +33-143988581 E: nicolas.papanoditis@ign.fr
16-18 July 2003	Second International Workshop on the Analysis of Multi-Temporal Remote Sensing Images (MultiTemp-2003)  <a href="http://www.multitemp.org">http://www.multitemp.org</a>	Ispra, ITALY	MultiTemp-2003 Workshop Secretariat P: +39-332-785279/F: -789803 E: multitemp-2003@jrc.it
21-25 July 2003	International Geoscience and Remote Sensing Symposium (IEEE/IGARSS 2003)  <a href="http://www.igarss03.com/">http://www.igarss03.com/</a>	Toulouse, FRANCE	Mrs Christine Correcher P: +33-5-6128-2388 F: +33-5-6128-2939 E: christine.correcher@cnes.fr E: igarss03@colloquium.fr
8-10 Aug 2003 <b>"NEW"</b> <i>Confirmed by Council</i>	 <b>IC WG II/IV 4th Joint ICA/ISPRS/EuroGeographics Workshop on Incremental Updating and Versioning of Spatial Data Bases</b> <a href="http://geo.haifa.ac.il/~icaupdt/meetings/durban/durban.htm">http://geo.haifa.ac.il/~icaupdt/meetings/durban/durban.htm</a>	Durban, South Africa	Dr. Ammatzia Peled P: +972-4-8-240-148/F: -249-605 E: peled@geo.haifa.ac.il CC: rjb@rjb-3d.com
10-16 Aug 2003	21st International Cartographic Conference & 12th General Assembly of the International Cartographic Association <a href="http://www.icc2003.gov.za">http://www.icc2003.gov.za</a>	Durban, South Africa	ICC 2003 F: +27-21-6891351 E: icc2003@dla.gov.za
16-23 Aug 2003 <b>"NEW"</b>	 <b>Joint meeting and Council Meeting</b>	Istanbul, TURKEY	Professor Ian Dowman (Secretary General) E: idowman@ge.ucl.ac.uk
18-20 Aug 2003 <b>"NEW"</b>	<b>4th Across-the-Strait Geomatics Conference</b>  <a href="http://ngcc.sbsm.gov.cn/haixiyantaohui.htm">http://ngcc.sbsm.gov.cn/haixiyantaohui.htm</a>	Changchun, CHINA	Ms. JIANG Xiaohong P: +86-10-6833-9095/F: -6831-1564 E: jiangxh@sbsm.gov.cn
25-27 Aug 2003 <b>"UPDATED"</b> <i>Cosponsorship Confirmed by Council</i>	 The 4th International Symposium on Mobile Mapping Technology "MMT 2003" Comm.I, WG II/1, II/2, IV/2, V/5  <a href="http://www.geoict.net/mmt2003/index.htm">http://www.geoict.net/mmt2003/index.htm</a>	Kunming, CHINA	Prof. Vincent Tao P: +1-416-736-5221/ F: -736-5817 E: tao@yorku.ca Prof. Gang Deng P: +86-871-514-4212/F: -519-8622 E: iep@kmust.edu.cn
29-30 Aug 2003 <b>"NEW"</b> <i>Confirmed by Council</i>	 <b>4th ISPRS Workshop on Dynamic and Multi-dimensional GIS 2003 (DMGIS 2003)</b>  <b>(web site will be under www.itc.nl)</b>	Enschede, THE NETHERLANDS	Rolf de By E: deby@itc.nl Wolfgang Kainz (Chair WG II/5) E: w.kainz@univie.ac.at
1-5 Sep 2003	49th Photogrammetric Week  <a href="http://www.ifp.uni-stuttgart.de">http://www.ifp.uni-stuttgart.de</a>	Stuttgart, GERMANY	Ms. Martina Kroma P: +49-711-121-3386/F: -121-3297/ E: martina.kroma@ifp.uni-stuttgart.de
8-10 Sep 2003 <b>"UPDATED"</b> <i>Confirmed by Council</i>	 Joint Workshop of Working Groups IV/3, 6 & 7 "Challenges in Geospatial Analysis, Integration and Visualization II"  <a href="http://www.gin-online.de/isprs">http://www.gin-online.de/isprs</a>	Stuttgart, GERMANY	Dr. Jochen Schiewe P: +49-4441-15558 F: +49-4441-15445 E: jschiewe@fzg.uni-vechta.de
8-12 Sep 2003 <i>Cosponsorship Confirmed by Council</i>	SPIE's Remote Sensing Europe  <a href="http://www.spie.org/">http://www.spie.org/</a>	Barcelona, SPAIN	SPIE P: +1-360-676-3290 F: +1-360-647-1445 E: spie@spie.org
10-12 Sep 2003 <b>"NEW"</b>	<b>The Annual Conference of the Remote Sensing and Photogrammetry Society "Scales and Dynamics in Observing the Environment"</b>  <a href="http://www.geog.nottingham.ac.uk/~rpsoc03">http://www.geog.nottingham.ac.uk/~rpsoc03</a>	Nottingham, UK	RSPSoc Office P: +44-1159-515435/F: -515249 E: rpsoc@nottingham.ac.uk
14-20 Sep 2003	6th International Symposium on Tropospheric Profiling "ISTP 2003: Needs & Technologies" <a href="http://istp2003.tropos.de:8085/">http://istp2003.tropos.de:8085/</a>	Leipzig, GERMANY	Ulla Wandinger P: +49-341-235-2154/F: -235-2361 E: istp@tropos.de
17-19 Sep 2003 <i>Confirmed by Council</i>	 Joint conference of WG II/IV, III/4, III/5, III/6 "Photogrammetric Image Analysis (PIA '03)"  <a href="http://serv.photo.verm.tu-muenchen.de/pia03/">http://serv.photo.verm.tu-muenchen.de/pia03/</a> <a href="http://www.remotesensing-tum.de/pia03">http://www.remotesensing-tum.de/pia03</a>	Munich, GERMANY	Prof. Helmut Mayer P: +49-89-6004-3429/3455 F: +49-89-6004-4090 E: Helmut.Mayer@UniBw-Muenchen.de E: pia03@remotesensing-tum.de
22-23 Sep 2003 <b>"UPDATED"</b> <i>Confirmed by Council</i>	 WG I/5 Workshop "Theory, Technology and Realities of Inertial/GPS Sensor Orientation"  <a href="http://www.ideg.es">http://www.ideg.es</a>	Barcelona, SPAIN	WG I/5 Chair: Dr. Karsten Jacobsen P: +49-511-762-2485/F: -762-2483 E: karsten@ipi.uni-hannover.de
22-25 Sep 2003 <i>Cosponsorship Confirmed by Council</i>	 Optical 3D Measurement Techniques Conference Comm. V, FIG, IAG  <a href="http://www.photogrammetry.ethz.ch/optical3d/">http://www.photogrammetry.ethz.ch/optical3d/</a>	Zurich, SWITZERLAND	Liliane Steinbrueckner P: +41-1-633-3157/F: -633-1101 E: stein@geod.baug.ethz.ch Armin Gruen (Chairman WG V/6) E: agruen@geod.baug.ethz.ch

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<b>DATE</b>	<b>EVENT</b>	<b>SITE</b>	<b>CONTACT</b>
22-27 Sep 2003 "NEW"	The European Academy of Forensic Science Third Triennial Meeting <a href="http://www.eafs2003.org/">http://www.eafs2003.org/</a>	Istanbul, TURKEY	EAFS 2003 P: +90-212-287-5800/F: -263-4581 E: eafs2003@enfsi.org
29 Sep – 3 Oct 2003 "NEW"	54 International Astronautical Congress <a href="http://www.iaac2003.org/">http://www.iaac2003.org/</a>	Bremen, GERMANY	54th IAC Sekretariat P: +49-421-218-2154/F: -218-2521 E: outreach@iaac2003.org
25-30 Oct 2003 "NEW"	ASPRS Workshop "Terrain Data: Applications and Visualization Making the Connection" <a href="http://www.asprs.org/asprs/meetings/calendar.html">http://www.asprs.org/asprs/meetings/calendar.html</a>	Charleston, USA	ASPRS P: +1-301-493-0290/F: -493-0208 E: asprs@asprs.org
29 Sep-30 Oct 2003 "NEW"	XXI Brazilian Cartographic Congress(CBC) <a href="http://www.cartografia.org.br/">http://www.cartografia.org.br/</a>	Belo Horizonte, BRAZIL	Brazilian Cartographic Society P: +55-21-2240-6901/F: -2262-2823 E: sbc.rlk@terra.com.br
30 Sep – 4 Oct 2003	CIPA Symposium "New Perspectives to Save Cultural Heritage" <a href="http://www.cipa2003-antalya.org/">http://www.cipa2003-antalya.org/</a>	Antalya, TURKEY	Prof. Dr. M. Orhan Altan (Symposium Director) P: +90-212 285 3810/F: 212 285 6587 E: oaltan@itu.edu.tr
2-3 Oct 2003 "NEW" Confirmed by Council	 WG IV/1 workshop "Spatial and Temporal Data Modelling: specifications, standards, formalisms and other system design issues" <a href="http://www.commission4.isprs.org/wg1">www.commission4.isprs.org/wg1</a>	Québec, CANADA	Yvan Bédard(Chair WG IV/1) P: +1-418-656-2131#3694 F: +1-418-656-3607 E: yvan.bedard@scg.ulaval.ca
6-8 Oct 2003 Confirmed by Council	 WG I/2, I/5 & IC WG II/IV Workshop "High Resolution Mapping from Space 2003" <a href="http://www.ipi.uni-hannover.de/html/aktuelles/tagungen.htm">http://www.ipi.uni-hannover.de/html/aktuelles/tagungen.htm</a>	Hannover, GERMANY	WG I/5 Chair: Dr. Karsten Jacobsen P: +49-511-762-2485/F: -762-2483 E: karsten@ipi.uni-hannover.de
6-10 Oct 2003	4th International Conference on 3-D Digital Imaging and Modeling <a href="http://www.3DIMconference.org">http://www.3DIMconference.org</a>	Banff, Alberta, CANADA	Conference E: 3dimconf@nrc.ca
8-10 Oct 2003 Confirmed by Council	 WG III/3 workshop on airborne laserscanning "3-D reconstruction from airborne laserscanner and InSAR data" <a href="http://www.tu-dresden.de/fghgipf/photo/ALS_DD2003/ALS_DD2003.html">http://www.tu-dresden.de/fghgipf/photo/ALS_DD2003/ALS_DD2003.html</a>	Dresden, GERMANY	WG III/3 Co-Chair: Prof. Hans-Gerd Maas P: +49-351-463-32859/F: -463-37266 E: hmaas@rcs1.urz.tu-dresden.de
15-18 Oct 2003 Confirmed by Council	 Meeting of WG VI/3 "Geo-Information for Practice" <a href="http://www.comm6wg3-isprs-meeting2003.com.hr/">http://www.comm6wg3-isprs-meeting2003.com.hr/</a>	Zagreb, Republic of CROATIA	Ljerka Rasic P: +385-1-3657-386/F: -1-6157-389 E: ljerka.rasic@dgu.tel.hr WG VI/3 Chair: Ulrike Karin Rivet E: ulrike@eng.uct.ac.za
tbr Oct 2003 Approval pending	 Monitoring and Modeling of Global Environmental Change - How to link Local with Global? Workshop ISPRS WG VII/6	Tokyo, JAPAN	Prof. Yoshifumi Yasuoka(Chair WG VII/6) P: +81-3-5452-6409 ( or 6411) F: +81-3-5452-6408 E: yyasuoka@iis.u-tokyo.ac.jp
3-7 Nov 2003 "NEW"	ACRS 2003 <a href="http://www.aars-acrs.org">http://www.aars-acrs.org</a>	Pusan, KOREA	Prof. Choen Kim F: +82-2-910-4809 E: ksrs@kmu.kookmin.ac.kr
6-7 Nov 2003 "NEW" Cosponsorship Confirmed by Council	International Symposium "Modern Technologies, Education & Professional Practice in the Globalizing World"  (web site not ready)	Sofia, BULGARIA	Prof. Dr. Eng. Georgi Milev P: +359-2-700-406/F: -720-841 E: milev@bas.bg
10-14 Nov 2003	30th International Symposium on Remote Sensing of Environment <a href="http://www.symposia.org/attention.html">http://www.symposia.org/attention.html</a>	Honolulu, Hawaii, USA	ISRSE E: isrse@email.arizona.edu Steve Brown E: brownie@ag.arizona.edu
3-5 Dec 2003 "UPDATED" Confirmed by Council	 Joint Workshop WG II/5 & WG II/6 On Spatial Analysis and Decision Making <a href="http://kartoweb.itc.nl/SADM2003">http://kartoweb.itc.nl/SADM2003</a>	Hong Kong, CHINA	Dr. Qiming Zhou P: +852-3411-5048/F: -3411-5990 E: qiming@hkbu.edu.hk
9-12 Dec 2003 "NEW" Confirmed by Council	 WG VII/3 workshop on "Integrated Monitoring System"  (web site not ready)	Thiruvananthapuram, INDIA	Shailesh Nayak(Chair WG VII/3) P: +91-79-6914141/F: -6760626 E: snayakad1@snacharnet.in
13-16 Dec 2003 Confirmed by Council	 WG I/4 International Conference on Advanced Remote Sensing for Earth Observation; Systems, Techniques, and Applications  (web site not ready)	Riyadh, SAUDI ARABIA	Dr. Raad A. Saleh P: +1-608-238-4825 E: rsaleh@charter.net