

Preliminary preface to NMSOP-2

Ten years have passed since the first printed edition of the IASPEI New Manual of Seismological Observatory Practice (NMSOP 2002). Some 2,000 hard copies are currently in use in more than 100 countries at seismological observatories, data and analysis centers, in teaching, research, and field applications, national and international seismology training courses, or by private enterprises and individual scientists. In 2006, Seismological Press Beijing published a two-volume hard cover edition in Chinese. In 2010 the Badan Meteorologi Klimatologi dan Geofisika (BMKG) in Jakarta, with support of the Japan International Cooperation Agency (JICA), published the first 3 Chapters of NMSOP in (Bahasa) Indonesian language. Three more Chapters are currently being translated and scheduled for publication in 2012. The first four Chapters have been translated into Turkish, with more being in preparation, and Russian translations of several NMSOP Chapters are used at seismological observatories and analysis centers in Russia and other countries of the Commonwealth of Independent States (CIS) already since 2006.

Such global adaptation and use signals a growing demand for the kind of information provided by the NMSOP and time for a rigorous update. NMSOP-2 will be published as a pure electronic edition. It is again the result of a great cooperative international effort: 73 authors from 18 countries have contributed to (or are still working on) it. More than 70 experts from 20 countries provided peer reviews, and Dr. Siegfried Wendt, himself author and co-author of several contributions to this Manual, has compiled a long-period filtered teleseismic broadband record section of the Collm (CLL) observatory in Germany, which now embellishes the front cover page of NMSOP-2. In this spirit, with this aim, the NMSOP needs to be maintained and further developed under the auspices of IASPEI and its Commission on Seismological Observation and Interpretation (CoSOI). Only then is it assured that the seismological community can always refer to an up-to-date and IASPEI-authorized guidance in observatory practice in the widest sense of modern applications.

The electronic version of NMSOP-2 will be realized in several steps during 2012, as manuscripts become available after completed review, revision and editing. Future revisions of NMSOP will have to adopt this approach of piece-wise realization anyway. An overall revision of such a huge and topically complex publication within a fixed time frame and in mostly voluntary work is no longer feasible and practicable, and the current editor will no longer be available for it. Therefore, anyone who wishes to propose further improvements or new topics or to make such a contributions himself is highly welcome and should contact the editor (nmsop@gfz-potsdam.de) and/or the CoSOI chairman, Dr. Dmitry Storchak, Director of the ISC (dmitry@isc.ac.uk).

NMSOP-2 and future follow-up versions will be freely accessible and downloadable. The newly chosen format (see *Editorial Remarks*) permits easy upgrading and complementing of NMSOP in accordance with rapid developments and changing requirements. It also minimizes the need for an overall editorship by emphasizing personal initiative and responsibility of all NMSOP authors, both current and future ones, for their contributions under the auspices of CoSOI/IASPEI and ISC. Thus, the IASPEI New Manual of Seismological Observatory Practice now becomes a **truly dynamic publication**.

NMSOP-2 provides access and download options for many valuable computer programs on:

- Event location
- Ray tracing
- Seismogram analysis
- Parameter determination
- Instrument calibration
- Record filtering
- Fourier analysis
- Network modeling

Moreover, we have complemented several topical contributions and exercises by animations (movies). They can be activated or downloaded (as the programs) from the listing *Download programs and files* (see overview on the NMSOP-2 cover page). These movies illustrate striking features, such as:

- Ray propagation of different seismic phases through the Earth interior;
- Great slowness differences of their propagating wavefronts on the Earth surface;
- Formation of related seismic records and travel-time curves in a regional network;
- Dependence of source radiation patterns and directivity on source azimuth, epicentral distance, fault strike, dip angle, and slip direction.

We are strongly interested to expand such new NMSOP features and invite other authors, who have developed similar modules of high educational value, to make them available as complementary material to relevant topics of the electronic NMSOP edition. Proposals should be addressed to the Editor (nmsop@gfz-potsdam.de).

What necessitated a second edition of the NMSOP?

Since the first NMSOP edition in 2002 rapid developments have taken place in many fields of observatory seismology, concerning both sensor and data acquisition technologies, the growing automation of data analysis and interpretation, widening applications of seismological technologies and methods in volcano monitoring, rupture tracking, microzonation, hazard assessment, earthquake and tsunami early warning, strong-motion, ocean bottom and engineering seismology as well as other fields. This necessitates upgrading of several existing NMSOP (2002) chapters and auxiliary materials as well as the addition of new ones.

At the 2007 IUGG/IASPEI General Assembly in Perugia, Italy, the Editor proposed to guide the elaboration of a purely electronic, significantly amended version of the NMSOP. CoSOI accepted this initiative and re-established a related NMSOP Working Group. The detailed NMSOP-2 project plan was presented two years later at the 2009 IASPEI General Assembly in Cape Town, South Africa. An essential component in this plan was the commitment of the library of the GFZ German Research Center for Geosciences in Potsdam to host and professionally maintain on a long-term basis the electronic versions of NMSOP. This commitment was demonstrated in the same year by putting the editorially slightly revised and corrected 2002 edition as NMSOP-1 on the Internet and allocating DOI-numbers to all reviewed contributions.

NMSOP-1 will continue to be available on the GFZ website also in future. This assures preserving many valuable older pieces of information which NMSOP-2 will not duplicate but refer to. Since October 2011, all electronic versions of NMSOP have their own, very easy to access website address: <http://nmsop.gfz-potsdam.de>, which is mirrored on the Websites of

IASPEI (<http://www.iaspei.org/projects/NMSOP.html>) and of the International Seismological Centre (<http://www.isc.ac.uk/standards>).

We have opted for a web-only edition of NMSOP-2. The reasons are pragmatic and economic: Increased mailing costs for bulky hard copies, out-rating even production cost, would not assure that NMSOP-2 will be affordable for those most in need of it. On the other hand, rather cheap and speedy computer and Internet facilities have meanwhile become available on a global scale, even in most of the earthquake-prone low-income developing countries.

To ease the orientation of users in the current, still incomplete preliminary version of NMSOP-2, we have compiled a complete *List of* (all expected) *NMSOP-2 titles* (see cover page). Already finalized and downloadable items, preliminary versions and those still in the pipeline are marked therein in different color. For more information consult on the cover page *Editorial Remarks* and *Rights_Permissions_Acknowledgments_References_NMSOP_2*.

Special thanks go again to Ms. Margaret Adams (UK/USA) for final English proof-reading of all manuscripts of the first edition, and to Ms. J. Suckale, Ms. A. Sachse, Ms. U. Borchert, Ms. R. Milkereit, Mr. Ch. Nerger and Mr. L. Gabrysch for their valuable technical assistance in consistent formatting, drawing of figures and compiling the lists of acronyms, the glossary and the index for the first NMSOP (2002) edition. Although the current Web edition has been significantly amended, much of these early efforts have still been preserved in NMSOP-2. For this 2nd edition, however, the undersigned had to accomplish all editorial work alone, without any such technical or clerical support. Therefore, any short-comings in this regards are solely his responsibility. The electronic version makes it now easy to eradicate both errors in substance or annoying typos. Manual users which spot such errors or typos are kindly requested to inform the Editor.

NMSOP authors and NMSOP Working Group members would like to express their gratitude to IASPEI for entrusting this important task to them and for the continuous interest taken and encouragement provided by CoSOI. Particular thanks go to the many external reviewers (see *List of Reviewers*). Their constructive criticism and suggestions have greatly facilitated the completion of this work, helped to improve original drafts and thus to assure high standards of both professionalism and comprehensibility of the texts for the very broad NMSOP user community. More specific acknowledgments are given at the end of individual NMSOP chapters or auxiliary items.

Most important for the implementation and maintenance of NMSOP-2 on the Web has been, and will continue to be for years to come, the Chief Librarian of the GFZ, Mr. Roland Bertelmann (rab@gfz-potsdam.de). Supported by his team and in close collaboration with the GFZ computer center, he will be the future key point of contact for both the authors and CoSOI in assuring the correct and comfortable long-term representation and upgrading of the IASPEI Manual. The editor has greatly benefitted from his expertise and cooperativeness in developing a suitable concept tuned to the specific potential of the web edition of NMSOP-2 at the GFZ. Gratefully acknowledged in this context is also the financial support granted to the editor by the GFZ in this final phase of completing NMSOP-2.

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Peter Bormann (NMSOP Editor)