

Editorial remarks to NMSOP-2

The New Manual of Seismological Observatory Practice (NMSOP 2002) was originally published in two printed volumes. Volume 1 comprised 13 topical Chapters, while Volume 2 contained different kinds of complementary annexed material. Annexed to most of the Chapters were Datasheets (DS), Exercises (EX), Information Sheets (IS), Program Descriptions (PD) and under Miscellaneous Acronyms, Glossary, the summary list of References and an Index. The only slightly revised first web edition of the Manual in 2009, thereafter termed NMSOP-1, reproduces the contents and outlook of NMSOP (2002)

Although the second electronic edition NMSOP-2 (2012) keeps the general classification of content and the internal structure of earlier Manual issues, it is no longer subdivided into two volumes. It also no longer requires an *Index* and a summary list of *References*. Powerful electronic search tools make a typed Index obsolete, and the saving of printed pages by avoiding repeated quotations of the same sources in the reference lists of individual papers is also no longer a valid argument for an electronic manual. Any reviewed individual contribution to NMSOP-2 now has its own DOI-number and can be downloaded separately. Therefore, more benefit is seen in considering each Manual contribution as a self-contained publication with its own reference list and the complete addresses of the authors. Accordingly, also the NMSOP (2002) summary *List of Authors* and *List of Contents* have been skipped. Instead, each NMSOP-2 item with more than 10 pages (with the exception of DSs and PDs) is now preceded by its own list of contents with page numbering. This gives readers a quick overview from the outset and eases the targeting of topics of specific interest.

What else is new in NMSOP-2? Four Chapters (14 to 17) and many new complementary materials have been added, including power point presentations, educational animation films and software, which also can be downloaded individually. Most other items of previous editions have been revised and often significantly amended as well. Both new and amended old contributions are recognized by DOI-numbers which contain “NMSOP-2_...”, in contrast to unchanged earlier contributions. The latter are linked by their DOI-numbers, containing “NMSOP_r1_...”, to the only in some items slightly revised NMSOP-1 (2009) edition.

The original numbering of Chapters and complementary materials remains unchanged in NMSOP-2. Each Manual Chapter is broken down into sections and sub-sections, e.g., Chapter 5, Section 5.1, Sub-section 5.1.2, or even further. The first number always relates unambiguously to the respective Chapter. The same applies to the numbering of figures, tables and equations. Also annexed DS, EX, IS, and PD are numbered according to the Chapter to which they refer, followed by a sequence number, e.g., DS 3.1 is the first Data Sheet belonging to Chapter 3 whereas EX 5.4 is the Exercise number 4 related to Chapter 5. All Manual items have thus been linked with each other editorially, easing mutual cross-references, balancing of contents and avoiding unnecessary duplications of issues.

Not numbered, however, are texts and listings that relate to the Manual as a whole, such as *Acronyms*, *Editorial Remarks*, *Glossary*, *Prefaces*, and *Rights_Permissions_Acknowledgements_References*. These files can be opened from the Manual content **Overview** on the NMSOP-2 cover page. The acronyms used in the Manual sometimes relate to institutions, organizations or programs that have their own web site; in those cases, we have added the web addresses in the alphabetical list of *Acronyms*.

The Manual is utilized by a very broad user community, including beginners, high-school students, teachers, disaster managers or specialists from other disciplines, who may not be sufficiently familiar with specific seismological terminology. Therefore, the *Glossary* in this

Manual includes also terms that may be common knowledge to seismologists but require a simple explanation for other users. When compared with the first edition, the *Glossary* in NMSOP-2 has been tremendously expanded by merging and harmonizing the glossaries in NMSOP (Bormann, 2002 and 2009), by Aki and Lee (2003) and by Lee (2009), and by adding additional entries of the editor and several other Manual authors. With nearly 200 pages this is at present the largest-ever published glossary explaining seismology related terms. [Therefore, users who have difficulties to understand some technical terms out of the context should consult the *Glossary* for a more comprehensive definition and explanation.](#) Yet, still the editor considers this current version to be a preliminary and maybe forever an open-ended one. Therefore, proposals for further amendments or revisions are highly welcome. [The same applies to the *Acronyms*.](#)

[Throughout the NMSOP-2 many links to external website have been given and their functioning been tested several times. However, we have realized that many institutions currently restructure rigorously \(or even close\) their previous websites. Thus, at the time of this writing, we found already some links not working that were still fully operational a few months ago. Therefore, neither the GFZ German Research Centre for Geosciences, nor the Editor or the authors can guarantee the correctness and functioning of any links given to external websites of institution, programs, firms of product. In case of link failures users are advised to “google“ for the respective “term”.](#)

In NMSOP-2 the names of authors and their addresses are given below the title of each Manual item. Several Chapters are collaborative work of all named authors, making it difficult to single-out individual contributions. The name of the main contributor or coordinator is then usually given first. Questions or comments should be addressed to him with a copy to the Editor. At times co-authors have contributed only to specific parts. When this case arises, their names are given in the list of contents behind the title of the respective sub-chapter/section. Questions or comments may then be addressed directly to these co-authors, again with a copy to the Editor and the main author of the Chapter for information. The same applies to annexed material.

The Manual contains many cross-references to figures, tables and equations in both Chapters and annexed items. The following nomenclature eases unambiguous cross-references:

- Annexed items are referred to by the acronym of their “class name” (e.g., DS; EX, IS, or PD) followed by the Chapter number to which they relate, and the sequence number, e.g., IS 2.1, EX 3.3, or PD 5.3.
- However, when referring to any sub-division of a Chapter we give only its respective number, e.g., see 4.2, or see 11.2.3.4.
- When referring to annexed items which relate to the Manual as a whole, we refer to the name of the folder (e.g., see Acronyms, Glossary, Prefaces, ...).
- Equations, figures and tables are numbered individually within each Chapter or annexed item; equation numbers are always given in brackets.
- Equation numbers in Chapters give first the Chapter number, followed by the sequence number of the equation within that Chapter, e.g., (5.7) or (3.43), whereas equations in annexed items are given by their sequence number only, e.g. (6).
- The same applies to figure and table numbers, with the exception that these numbers are not put in brackets, e.g. Fig. 5.3 or Tab. 3.1.
- References to figures, tables or equations in annexed items are made as follows: e.g., see Figure 4 in DS 11.2, or see Table 1 in EX 3.2, or see Equation (12) in IS 3.1.

NMSOP-2 offers access and download options via hyperlink to many computer programs, animations (educational movies), power point presentations and other types of files. The respective folder or file names are printed in the related texts in bold black. All these names are summarized in a listing of *Download programs and files* (see NMSOP-2 cover page). They can be downloaded and/or activated via hyperlink from this summary listing by right mouse click on the respective link names, which are printed in bold blue letters. Sub-routine or file names which are printed in this listing in bold black letters are only part of larger program packages. Related information, also about authors and the type of programs or files are given in this listing as well.

We use American English as consistently as possible, however some modifications may occur and hopefully will be tolerated. Experts from many nations have contributed both to the Manual drafts and the review process, thus different opinions about correct style, grammar and punctuation have been unavoidable. For example, there are pros and cons for writing either “Earth”, or “earth” depending on whether one refers to the whole planet or only parts of it. We opted for “Earth”, as in the old Willmore (1979) Manual. Accordingly, we speak of Earth models, Earth tides, etc. We avoided using the term ‘Earth’ when specifically referring to the Earth’s crust, lithosphere, mantle, or core. No consensus could be reached between American, Australian and English reviewers as to when to use the apostrophe (e.g., as in Earth’s Interior) and when not (as now common in Earth models or Earth systems). Therefore, we have tried to avoid its use. Despite all efforts, and taking into account that the majority of authors, including the Editor, do not have English as their mother tongue, typos, misnomers and occasionally clumsy phrasing may still be found. Some references to figures, equations, tables, publications or sub-sections may still be missing or incorrect; the Editor will be grateful for any suggestions and/or corrections.

Ten years ago, the IASPEI Working Group on Phase Names agreed on a list of standard phase names. It includes old, partially changed and new names. The list is reproduced in IS 2.1. It has been approved by IASPEI and was published by Storchak et al. in 2003, and, slightly modified, in 2011. As far as possible we have applied the new phase names, e.g., Pdif instead of Pdiff and PKPdf instead of PKIKP. Yet, some of the figures have been reproduced from other sources or have been plotted by programs for seismogram analysis that still use the old terminology. This explains some inconsistencies in the Manual with respect to phase names, but we strongly favour the consistent use of the standard phases names as given in IS 2.1.

With respect to magnitude symbols, different nomenclatures are used in NMSOP-2:

- a) the generic NMSOP (2002) nomenclature, which largely agrees with that in most pre-2010 seismological publication, with the exception of writing no subscripts and Ml instead of ML.
- b) the NMSOP (2002) specific nomenclature (see IS 3.2), because it describes unambiguously the type of seismic wave used for magnitude determination, the record component on which the amplitudes have been measured and the response type of the seismograph;
- c) the IASPEI (2011) nomenclature for standard magnitude and amplitude readings (see http://www.iaspei.org/commissions/CSOI/Summary_WG-Recommendations_20110909.pdf), which we strongly advocate. The reasons are outlined in Chapter 3 and IS 3.3.


Furthermore, in all NMSOP editions we generally use the symbol D for epicentral distance instead of Δ , which is more common in older literature. However, in magnitude formulas and

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tables of calibration values we keep the Δ as in the original formulas. Physical units are given consistently in accordance with the International System of weights and measures (SI units). Only occasionally reference is made to equivalent American units.

Finally, since several chapters and other manual items are still under major revision, some references in the now published manual contributions to other section, figure and/or table numbers are still followed by ????. This means that these numbers still relate to the respective items in the NMSOP-1 (2009) web edition or the related printed edition of 2002. The question marks will be deleted when the finally revised numbers of these items become available with the completed version of NMSOP-2.

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Peter Bormann (NMSOP Editor)

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