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Review Article

EURADOS Education and Training activities

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Abstract

This paper provides a summary of the Education and Training (E&T) activities that have been developed and organized by the European Radiation Dosimetry Group (EURADOS) in recent years and in the case of Training Courses over the last decade. These E&T actions include short duration Training Courses on well-established topics organized within the activity of EURADOS Working Groups (WGs), or one-day events integrated in the EURADOS Annual Meeting (workshops, winter schools, the intercomparison participants' sessions and the learning network, among others). Moreover, EURADOS has recently established a Young Scientist Grant and a Young Scientist Award. The Grant supports young scientists by encouraging them to perform research projects at other laboratories of the EURADOS network. The Award is given in recognition of excellent work developed within the WGs' work programme. Additionally, EURADOS supports the dissemination of knowledge in radiation dosimetry by promoting and endorsing conferences such as the individual monitoring (IM) series, the neutron and ion dosimetry symposia (NEUDOS) and contributions to E&T sessions at specific events.

1. Introduction

The European Radiation Dosimetry Group (EURADOS, www.eurados.org) is a scientific organization. Its mission includes the promotion of science, technology and harmonization in the dosimetry of ionizing radiation. EURADOS was founded in 1981 and its Constitution registered in The Netherlands the same year. In 2008, the 20th General Assembly approved a revised Constitution with new statutes which led to the creation of EURADOS e.V. ("Eingetragener Verein") and registration in Germany as a Registered Society. EURADOS is an association of more than 70 institutions, the so-called Voting Members. The delegates appointed by each member institution have voting rights at the General Assembly (GA) that takes place every year at the EURADOS Annual Meeting, where the activities of the association are discussed and the annual budget is approved. EURADOS is governed by the Council that is composed by up to twelve members, each elected by the Voting Members at the GA for a three year term. The extended executive Board of EURADOS includes Chair, Vice-chair, secretary, and treasurer. The work performed by EURADOS (for example scientific studies, measurement campaigns, training actions, etc.) is carried out by 500 (approx.) individual scientists from the Voting Members' institutes and from other Institutions, the so-called Associate Members. As of May 2019, this work is organized within eight Working Groups (WGs). EURADOS is a self-sustained and independent network with regular income from sponsoring Voting Members, from levies raised for activities organized by EURADOS such as Training Courses and Intercomparison exercises (see below), and from projects funded by the European Commission. The governance of EURADOS is described in some more detail in Rühm and Schuhmacher 2017 [1].

In 2014, EURADOS published its first Strategic Research Agenda (SRA) with the objective to identify the future European research needs in the field of ionizing radiation dosimetry [2,3]. The main topics and fields of work mentioned therein serve as guidelines for the research activities of the EURADOS WGs. The SRA of EURADOS is also being used by the European Commission to define the research needs in Europe in the dosimetry of ionizing radiation and, consequently, to define and publish the corresponding research calls. The SRA is periodically revised and an updated version is planned in 2019.

As mentioned in the SRA, Education and Training (E&T) together with Harmonization and Computational methods are considered cross-cutting activities for EURADOS. EURADOS E&T actions may take the form of short duration Training Courses on well-established topics organized within the activity of a WG that may last for up to a week, but also include one-day events like workshops, winter schools, intercomparison sessions and the learning network that addresses issues of interest for the individual monitoring services. Furthermore, EURADOS recently created a grant for the support of research for young scientists and an award, again for young scientists, for the recognition of excellent

work performed within the framework of a WG. This paper is also expected to contribute to the dissemination of EURADOS' E&T activities.

2. EURADOS Working Groups

The main activity of EURADOS is performed by the Associate Members organized within the eight WGs that are presently active, each dedicated to a specific field of ionizing radiation dosimetry as indicated by the respective WG titles listed in table 1.

Table 1 – EURADOS Working Groups, respective coordinator and number of Associate Members present at the Annual Meeting 2019 (WG06 and WG09 recently changed chairpersons).

WG	Title	Coordinator (institution, country)	Attendants
WG02	Harmonization of individual monitoring	P. Gilvin (PHE, UK)	70
WG03	Environmental monitoring	A. Vargas (UPC, Spain)	70
WG06	Computational dosimetry	H. Rabus (PTB, Germany) Formerly R. Tanner (PHE, UK)	32
WG07	Internal dosimetry	B. Breustedt (KIT, Germany)	33
WG09	Radiation dosimetry in radiotherapy	L. Stolarczyk (Skandion, Sweden and IFJ, Poland) Formerly R. Harrison (Univ Newcastle, UK)	30
WG10	Retrospective dosimetry	C. Woda (HMGU, Germany)	40
WG11	High energy radiation fields	M. Caresana (Polimi, Italy)	28
WG12	Dosimetry in medical imaging	Ž. Knežević (RBI, Croatia)	43

The number of Associate Members in each WG depends on the research interests of the member institutions and the associated individual scientists, and on the commitment of the members to the corresponding WG activity. Typically, WG membership is characterized by a mix of young scientists and more senior experts. The WGs normally meet twice a year, during the Annual Meeting where all WGs meet, and later on throughout the year at individual locations. Additional meetings may be organized when needed, for example for the organization of specific actions such as a Training Course or Intercomparison exercises. More detailed information on the EURADOS WG work programme can be found in ref [4].

3. Training Courses

Short-duration Training Courses (TCs) on well-established topics of interest to the dosimetry community with a typical duration of one week are periodically organized by EURADOS in collaboration with the Institution that hosts the event. In general, a scientific committee composed of WG members prepares the training programme, appoints lecturers and organizes the TC action. Courses conclude with a user evaluation of the topics addressed, the clarity of the lectures and the

course organization, for an overall assessment of the training with the aim at improving further actions.

TCs may include lectures and practical sessions with exercises. Depending on the activity developed within each WG and the host institute, visits of laboratories can also be considered. As an example, WG02 has recently delivered the 5th edition of the TC on the European technical recommendations for monitoring individuals occupationally exposed to external radiation, based on the Radiation Protection n.º 160 published by the European Commission in 2009 [5]. This report was developed by EURADOS within the frame of an EC-funded project. The target audience of this TC are technical and trainee managers of Individual Monitoring Services (IMS) and staff from Radiation Protection authorities. The TC normally includes lectures, practical sessions, and tours of an IMS and/or an ionizing radiation metrology laboratory (or calibration laboratory) from the host institute.

Following the publication of Radiation Protection n.º 188 by the European Commission [6], which was again developed by EURADOS within the frame of an EC-funded project, WG07 has recently organized the first TC on the European technical recommendations for monitoring individuals for occupational intakes of radionuclides in March 2019 with the International Atomic Energy Agency (IAEA) as hosting institution.

In Table 2a a summary of the Training Courses organized by EURADOS in collaboration with hosting institutes that took place over the last 10y is shown. The number of attendants is also mentioned.

Table 2a – EURADOS Training Courses in the 2009-2019 period.

WG	Training Course (title, venue, year)	Year	N.
WG07	EURADOS Training course on the Technical Recommendations for Monitoring Individuals for Occupational Intakes of Radionuclides (Radiation Protection 188 [6]) IAEA, Vienna, Austria, March 2019	2019	30
WG02	New title for the 5 th edition: Radiation Protection Dosimetry and Accreditation of IMS: Secrets and Solutions, IRSN Fontenay-aux-Roses, France, May 2019	2019	38
WG02	European Technical Recommendations for Monitoring Individuals Occupationally Exposed to External Radiation (Radiation Protection 160 [5])		
	4 th Azienda Ospedaliero Univ Careggi, UO Fisica Sanitaria, Firenze, Italy, April 2017	2017	47
	3 rd Instituto Superior Técnico, Bobadela, Portugal, May 2015	2015	25
	2 nd Ruđer Bošković Institute, Zagreb, Croatia, Nov 2013	2013	32
	1 st Institute of Nuclear Physics of the Polish Academy of Sciences, Krakow, Poland, Nov 2012	2012	41
WG06	EURADOS Voxel Phantom School		
	3 rd Karlsruhe Institute of Technology, Karlsruhe, Germany, March 2018	2018	11
	2 nd Helmholtz Zentrum München, Neuherberg, Germany, May, 2014.	2014	25
	1 st IRSN, Fontenay-aux-Roses, France, October, 2011	2011	31
WG07	Monte Carlo Methods for calibration of body counters [7] Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, November, 2013	2013	14
WG10	School on Retrospective Dosimetry (Practical exercise in Solid State & Cytogenetic dose reconstruction) Helmholtz Zentrum München, Neuherberg, Oct 2012	2012	12

WG07	EURADOS/IAEA Regional Training Course on Advanced Methods for Internal Dose Assessment (Application of IDEAS Guidelines and dissemination of CONRAD internal dosimetry results) IAEA and Czech Technical University, Prague, Czech Republic, February 2009.	2009	34
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More recently, EURADOS organized TCs within the framework of CONCERT, the European Joint Programme for the Integration of Radiation Protection Research under Horizon 2020. A list of these TCs is shown in Table 2b.

Table 2b – EURADOS Training Courses organized in the framework of CONCERT.

WG	Training Course (title, venue, year)	Year	N.
WG10	RENEB-EURADOS-CONCERT: ADORE Application of cytogenetic and EPR/OSL techniques for biological dosimetry and physical retrospective dosimetry. Bundesamt für Strahlenschutz, Helmholtz Zentrum München, Germany, June-July 2019	2019	12
WG10	EURADOS-CONCERT School on Uncertainty in biological, physical, and internal dosimetry following a single exposure. IRSN, Fontenay-aux-Roses, France, April 2019	2019	23
WG06 WG07	EURADOS-CONCERT Training Course on Application of Monte Carlo methods for dosimetry of ionizing radiation. Karlsruhe Institute of Technology, Karlsruhe, Germany, March 2018	2018	11
WG10	EURADOS-CONCERT School on Uncertainty analysis processes for retrospective dosimetry and associated research. IRSN, Fontenay-aux-Roses, France, June 2017	2017	20

In addition, EURADOS also collaborates with other organizations providing contributions to TCs like lecturing modules specific to EURADOS's activity such as on dosimetric quantities and calibration of radiation protection monitors and dosimeters, etc., as was the case in the Annette Summer School of the European Nuclear Education Network (www.enen.eu) held in June 2018.

4. Annual Meetings

The EURADOS Annual Meetings (AMs) are central events with an important role in the dissemination of EURADOS activities. Over the last few years, the issues dealt with at EURADOS AM have increasingly attracted the interest of the dosimetry community, which is demonstrated by the fact that the number of participants increased from about 70 attendants in 2002 to over 300 in the last three years AM2017 (Karlsruhe, 318), AM2018 (Lisbon, 320) and AM2019 (Łódź, 311). The AMs generally take place in the end of January or beginning of February and last for 4 to 5 days. During an AM, the WG meetings are open to all interested attendants, except when confidentiality is needed, such as the meetings for the organization of intercomparison (IC) exercises and/or the assessment of IC results.

In order to make an AM a more attractive event to the scientific and technical community, one-day symposia have gradually been introduced depending on certain WG activities, in the form of

workshops, winter schools, sessions for the participants in the intercomparison exercises and more recently the learning network.

4.1 Winter Schools at AM

The organization of Winter Schools (WSs) respond to the need for training in the field of dosimetry and radiation protection. WSs were included in an AM for the first time in 2007, and the 12th WS was held at the AM2019. The topic of a WS is decided by the EURADOS Council taking also into account the main field of work of the institution hosting the AM. A scientific committee is appointed by the Council and prepares a programme, and proposes experts in the field (either from EURADOS or beyond) as lecturers. A list of the topics dealt with at the twelve WS organized so far by EURADOS is given in Table 3.

Table 3 – Topics of the Winter Schools held at Annual Meetings

AM	#	Winter School topics
AM2019	12 th	Radon: Dosimetry, Metrology and Regulation
AM2018	11 th	Application of physical and computational phantoms in dose assessment
AM2017	10 th	Internal dosimetry for radiation protection and medicine [8]
AM2016	9 th	Dosimetry for epidemiological cohorts
AM2015	8 th	The Fukushima Daiichi nuclear accident, the role of dosimetry in assessing the consequences
AM2014	7 th	Relative Biological Effectiveness, radiation weighting factor and quality factor: their role in quantifying effectiveness of ionizing radiation
AM2013	6 th	Status and Future Perspectives of Computational Micro- and Nanodosimetry
AM2011	5 th	Radiation Protection for Medical Staff
AM2010	4 th	Radiological Emergencies – Internal exposures
AM2009	3 rd	Low-Dose Radiation Effects
AM2008	2 nd	Retrospective Dosimetry
AM2007	1 st	Uncertainties in Radiation Dosimetry

The presentations given at the 6th to 12th Winter Schools are available for download from the EURADOS webpage at http://www.eurados.org/en/Actions/Winter_schools. The presentations given at the 10th WS held at the AM2017 were published in the open literature in the journal *Radiation Measurements* [8].

4.2 Scientific Workshops at AM

Scientific workshops have been organized by EURADOS to present and disseminate the scientific results obtained by a WG, for example at the end of a project and/or framework programme. A list of the issues dealt with at past EURADOS Workshops is presented in Table 4. The lectures given at the Workshops were published in the open literature in peer-reviewed journals and are mentioned in

Table 4.

Table 4 – Scientific Workshops held at Annual Meetings

	Workshop titles	Refs
AM2012	Dosimetry for second cancer risk estimation in radiotherapy	[9]
AM2010	Accelerator radiation protection and shielding	[10]
AM2009	Cosmic Radiation and Aircrew Exposure	[11]
AM2008	Dosimetric Issues in the Medical Use of Ionizing Radiation	[12]
AM2007	Characterization of Workplaces for the Assessment of the Doses to Individuals	[13]
AM2006	Uncertainties in Dosimetry - Principles Through to Practice	[14]
AM2005	Radiation Protection Dosimetry and Dosimetry for Medical Applications	[15]
AM2004	Biological and Physical Dosimetry for Radiation Protection	[16]

4.3 Sessions at AM for participants in the Intercomparison exercises

EURADOS WG02 started organizing regular self-sustained intercomparison (IC) exercises in 2008 in response to a need of Individual Monitoring Services (IMS). This need is evident given that accreditation of IMS in compliance with the ISO/IEC 17025 standard [17] is gradually becoming mandatory and not all European member states have access to IC exercises organized by their respective Radiation Protection authorities.

Organization of ICs for IMSs is done by specific task groups of WG02, the so-called IC Organizing Groups (OGs). The EURADOS IC programme [18,19] has so far led to the organization of IC exercises for whole body dosimeters in photon fields every two years [20-23], IC exercises for extremity dosimeters in photon and beta fields in 2009, 2015 and 2019 [19,25,26], and IC exercises for neutron dosimeters in 2012 and 2017 [19,27,28].

The OG prepares all the necessary steps of the IC exercise, e.g. coordination of the IC, preparation of the irradiation plan, contacting the irradiation laboratory, receiving the dosimeters from the participants, arranging transfer to and from the irradiation laboratory, returning dosimeters to participants, and the overall assessment of the exercise, including the dissemination of the results. At the end of each IC exercise the OG also organizes a participants' meeting, typically attended by up to 70 people, where all important issues of the exercise are presented. In general, such a meeting takes place at a EURADOS AM with a few exceptions in the past, such as IC2012n presented at the NEUDOS12 conference in Aix-en-Provence (France) [28] and IC2014ph presented at the IM2015 conference in Bruges (Belgium) [29], see "6.1 Conferences endorsed by EURADOS" below.

In Table 5 a list of the past EURADOS IC exercises is presented along with the number of IMS participants and systems, and where the participants' session took place.

Table 5 – EURADOS regular Intercomparison (IC) exercises, number of Individual Monitoring Services (IMSs) and systems and participants' session location

Acronym	Subject of the Intercomparison exercise	IMS/ systems	Session location
IC2019ext-eye	Extremity and eye-lens in photon and beta fields	In progress	To be decided
IC2018ph	Whole body dosimeters in photon fields	101/121	AM2019, Łódź, Poland
IC2017n	Neutron dosimeters	32/33	AM2019, Łódź, Poland
IC2016ph	Whole body dosimeters in photon fields	86/103	AM2017, Karlsruhe, Germany
IC2015ext	Extremity dosimeters in photon and beta fields	52/72	AM2016, Milano, Italy
IC2014ph	Whole body dosimeters in photon fields	96/112	IM2015, Bruges, Belgium
IC2012n	Neutron dosimeters	31/34	NEUDOS12, Aix-en- Provence, France, 2013
IC2012ph	Whole body dosimeters in photon fields	74/88	AM2013, Barcelona, Spain
IC2010ph	Whole body dosimeters in photon fields	70/85	AM2011, Vienna, Austria
IC2009ext	Extremity dosimeters in photon and beta fields	44/59	AM2010, Rome, Italy
IC2008ph	Whole body dosimeters in photon fields	52/62	AM2009, Braunschweig, Germany

Regarding environmental monitoring, in 2014 EURADOS WG3 organized an IC of passive area photon dosimeters, IC2014env [30]. More recently, ICs on calibration methods (calm) for environmental dosimeters, e.g. IC2016calm and IC2018calm, have also been organized by EURADOS WG03. The results were discussed at the AM2017 and AM2019, respectively, and will soon be published.

Other IC studies with a more scientific scope and impact are also developed by EURADOS WGs. The output of this work can be found in the literature, for instance, the WG12 IC on eye-lens dosimeters [31,32], the WG06 IC on computational dosimetry [33-37], the joint WG06 and WG07 IC on ICIDOSE [38] and other internal dosimetry issues [39,41], and more recently the WG07 IC on nanoparticles [42] and the WG10 IC on retrospective dosimetry using electronic components in smartphones [43-45].

4.4 Learning Network at AM

The Learning Network (LN) is a relatively new initiative of WG02 and was organized at the AM2017 for the first time, intended to promote harmonization of individual monitoring in Europe. It derived from the discussions held at the IC participants meetings identifying topics for further work. A LN session consists of 3-4 short (10 min) presentations given by a moderator/lecturer on "hot" topics suggested by the participants in the IC exercises or by WG members. Following the presentations, the attendants divide into groups according to their interest and carry on the discussions led by the moderator on a number of specific topics. At the end a rapporteur summarizes the discussions held. A feedback sheet is also distributed to all participants to assess the relevance of the action and to ask suggestions for further topics. In Table 6 the topics discussed at the LNs held at the AM2017, AM2018 and AM2019 are presented together with the number of attendants.

Table 6 – Learning Network topics and number of attendants

AM	Title of the session at the Learning Network	Attendants
AM2019	Eye-lens dosimetry Transit and background dose subtraction ISO/IEC 17025:2017	51
AM2018	Dosimetric aspects of QA/QC Traceability - Validation of the method Management aspects of QA Causes of “bad” results	52
AM2017	Homemade type testing Accreditation issues part A: Assuring the quality of test and calibration results Accreditation issues part B: The use of customer surveys and customer feedback to improve a dosimetry service Accreditation issues part C: How does YOUR dose report look?	55

5. Young Scientist Grant and Young Scientist Award

In 2014, EURADOS allocated for the first time funds for the Young Scientist Grant and the Young Scientist Award, in order to encourage young associate members to become involved in WG activities. The amount allocated to the awards is annually confirmed by the EURADOS Council.

The EURADOS Young Scientist Grant is aimed at the support of a research stay for an applicant to develop work within the topics identified in the EURADOS SRA at one of the WGs' member Institutes. The final outcome of the research work supported by the Grant shall result in a peer reviewed publication and/or a presentation at an international conference or workshop.

The EURADOS Young Scientist Award consists of 500 € for the recognition of excellent work performed by a young scientist on a topic identified in the EURADOS SRA. The final research work should be published in a peer reviewed publication and/or presented at an international conference or workshop.

The Grant and Award include an official certificate signed by the EURADOS Chair and an invitation to the next EURADOS Annual Meeting. Until now (April 2019), five Young Scientist Grants and four Young Scientist Awards have been given by EURADOS.

6. Promoting E&T actions on an international level

6.1 Conferences endorsed by EURADOS

The European Individual Monitoring (IM) conferences started in 1993, with the Workshop on Individual Monitoring of Ionizing Radiation, held in Villigen, Switzerland [46] and organized by EURADOS members with support of the European Commission. Seven years later, following a European Commission funded framework programme on Harmonization of Individual Monitoring,

1
2
3 EURADOS organized the European Workshop on Individual Monitoring for external exposure IM2000
4 in Helsinki, Finland [47], endorsing a stable action for WG02.

5
6 Since then, the European IM conferences have widened their scope, becoming a EURADOS activity
7 regularly taking place every 5 years. For all WGs the monitoring of individuals for internal and external
8 radiation, exposure in medicine, research and industry, emergency exposure, use of computational
9 methods in the various fields, space dosimetry, etc., are within the core of the WG's work. The
10 EURADOS Council promotes the IM conferences from the call for the organization, the selection of the
11 venue and eventual support to the organization. The preparation work of IM conferences was taken
12 over by WG chairs and WG members as part of scientific committee work, e.g. setting up the scientific
13 programme, selection of abstracts, organization of refresher courses, selection of oral and poster
14 communications, selection of invited lectures and lecturers, chairing of sessions, review of papers for
15 publication in the open literature, etc. As aforementioned, IM2000 took place in Helsinki, Finland [47],
16 and was followed by IM2005 in Vienna, Austria [48], and by IM2010 held in Athens, Greece [49], then
17 IM2015 became an International Conference held in Bruges, Belgium [29]. The next conference in this
18 series, IM2020, will be held in Budapest, Hungary.

19
20 The IM conferences offer an important opportunity to disseminate the work carried out by the WGs
21 in the fields of dosimetry of ionizing radiation. A similar situation occurs with the neutron and ion
22 dosimetry symposia (NEUDOS) where EURADOS successfully continues this long tradition of attracting
23 physicists, physicians, practitioners and radiation protection officers. These conferences started in
24 Harwell, UK, in 1962 and continued over the next 25 years at GSF in Neuherberg, Germany, becoming
25 a major event on the international map of scientific conferences in the field of dosimetry. NEUDOS10
26 which took place in Uppsala, in Sweden in 2006, was formally organized by EURADOS that initiates
27 and coordinates the upcoming events. In 2009 the 11th Symposium was organized outside Europe for
28 the first time, at iTEMBA Labs, in Cape Town, South Africa [50], followed by NEUDOS12 in Aix-en-
29 Provence, France, in 2013 [51]. The NEUDOS13 took place in Kraków, Poland, in May 2017.
30 Proceedings of the NEUDOS symposia have been published in broadly recognized international journal
31 [52] and constitute an important source of knowledge on neutron and ion dosimetry.

32
33 EURADOS has also been visible at other related conferences such as, for instance, the Solid State
34 Dosimetry (SSD) conference series, the IAEA Medical Radiation Dosimetry Symposium series (IDOS),
35 the International Conference on Dosimetry and its Applications series (ICDA), and conferences of the
36 International Radiation Protection Association (IRPA), where EURADOS has been providing support to
37 lecturers for the presentation of results from WG activities.

6.2 E&T sessions at Radiation Protection Week and Platform events

The Radiation Protection Platforms like MELODI (Low Dose Initiative), ALLIANCE (Radioecology), NERIS (Radiological Emergencies) and more recently EURAMED (European Alliance for Medical Radiation Protection Research) together with EURADOS have organized opportunities to meet and present their respective SRA and discuss common topics of interest.

A summary of EURADOS E&T activities was presented at the 5th and 6th MELODI workshops, respectively held in Brussels (Belgium) in October 2013 and in Barcelona (Spain) in October 2014. In September 2016, at the 1st Radiation Protection Week (RPW) held in Oxford (UK) an updated presentation at the E&T session was given.

More recently, in October 2017, at the ICRP's 4th International Symposium of the System of Radiological Protection, and the 2nd European Radiation Protection Week, a joint ICRP-EURADOS session on Advances in Dose Coefficients took place in Paris, France [4,53]. EURADOS also contributed to the European Education and Training in Radiation Protection (EUTERP) workshop held in Malta in April 2019.

A general conclusion from the above mentioned events is the will to set-up collaborations keeping the specificity of each association, avoiding the superposition of topics and the duplication of E&T actions.

7. Conclusions

The various E&T actions developed by EURADOS with a focus on the TCs organized in the 2009–2019 period were presented. The number and broad scope of actions undertaken by EURADOS shows its unique role in Europe, as far as E&T in dosimetry of ionizing radiation are concerned. Although initially set-up to respond to the needs of the EURADOS community, the EURADOS E&T actions are now structured with established formats and provided on a regular basis, addressing the topics of interest to the WGs on radiation dosimetry, the implementation of technical recommendations and good practice in dosimetry in general, representing a contribution to the international E&T actions in radiation protection and dosimetry.

In the case of TCs, the interest shown by the attendants and other stakeholders has encouraged the preparation of further editions by EURADOS WGs. The feedback and suggestions from attendants have also provided important clues for improvement, e.g. dedication of more time and effort to specific topics briefly addressed.

As mentioned above, EURADOS, together with other Radiation Protection platforms and other associations are working towards the identification of topics of common interest suggesting that E&T actions organized and prepared as joint collaborations will increase in the near future.

EURADOS is presently revising and updating its SRA for identification of the future research topics that will guide the WG activity for the next five years. In the revised SRA, the E&T actions will be as important. EURADOS will maintain its rhythm of organizing events on the specific matters dealt with by the WGs, thus continuously contributing to harmonization and to dissemination of good practices in ionizing radiation dosimetry.

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