

- **WG Members**

- Marek Lewitowicz (Coord.), Joaquin Gomez Camacho, Sotiris Harissopoulos, Danas Ridikas, Vladimir Wagner, Gabriele-Elisabeth Körner

- **WG meetings:**

- 2 Skype meetings in September 2019, meetings on October 13 and October 17

- **Timeline for the report**

- Partial draft by Feb/Mar 2020, for NuPECC Meeting,
- Final version by Oct 2020
- To be distributed together with Nuclear Physics News

- **Scope**

- major report <100 pages, rather for general public,
- colorful brochure of ~10 pages, really for general public,
- emphasis on applications of nuclear physics not on research

- **Identified topics**

- Introduction - *ML*
  - Radioactivity (natural radioactivity, cosmic rays, induced radioactivity)
  - Elements and nucleosynthesis
- Climate & Environment (Sun activity, heat in the Earth interior, ocean monitoring, wastewater treatment, mapping of groundwater resources, air pollution...) - *JGC*
- Energy (electric power generation) - *VW*
- Health (radioisotopes for therapy and diagnosis, hadrontherapy) - ...
- Everyday life products (sterilization, radiation processing, cross-linked coatings, material modification,...) - *DR*
- Space and communication
- Food (and agriculture) - *DR*
- (Cultural) heritage - *ML*
- Forensics - *DR*

- **Existing reports and other materials**

NuPECC reports:

[http://www.nupecc.org/pub/impact\\_applications\\_interactions\\_2002.pdf](http://www.nupecc.org/pub/impact_applications_interactions_2002.pdf)

<http://www.nupecc.org/pub/npmed2014.pdf>

<http://www.nupecc.org/pub/lrp17/lrp2017.pdf>

IAEA presentations and factsheets:

[http://www.nupecc.org/restricted/Documents/cayol\\_feb19.pptx](http://www.nupecc.org/restricted/Documents/cayol_feb19.pptx)

[http://www.nupecc.org/restricted/Documents/osso\\_feb19.pptx](http://www.nupecc.org/restricted/Documents/osso_feb19.pptx)

<https://www.iaea.org/publications/factsheets>

iThemba Labs

[http://www.energy.gov.za/files/media/Pub/NuclearEnergyInEverydayLife\\_Booklet.pdf](http://www.energy.gov.za/files/media/Pub/NuclearEnergyInEverydayLife_Booklet.pdf)

US

[https://www3.nd.edu/~nsl/Lectures/Junior\\_seminar/nuclear\\_physics\\_applications.pdf](https://www3.nd.edu/~nsl/Lectures/Junior_seminar/nuclear_physics_applications.pdf)

JENAS presentations

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## 2. Climate & Environment. (~ 15 pages)

### Organization (prepared by JGC)

Contributors: Nuria Casacuberta (ETH Zurich), Eleonora Viezzer (US-CNA), Petra Ramos (AEMET), Joaquin Gomez Camacho (US-CNA)

2.1: Introduction to Climate and weather forecast. Evolution of climate models, introducing coupling to different systems. Influence of solar activity on weather and climate. Role of oceans and cryosphere on weather forecast and climate projections.

**PR-JGC**

2.2: The sun as a nuclear fusion reaction. Plasma Instabilities. Solar flares. Relation of the sun with fusion reactors at earth. Nuclear physics and plasma physics studies and their relevance for the understanding of the sun dynamics. **EV**

2.3: Ocean and cryosphere dynamics. Oceanic models. Interaction of the oceans and the ice crust with other elements of the climatic system. Radioactive Isotopes as tracers of the oceanic motion. AMS techniques for measurements of trace elements. **NC**