



Innovative integrated tools and platforms for radiological emergency preparedness and post-accident response in Europe

PREPARE



Back into the collective memory to communicate about and explain a nuclear accident to the public

Issues and recommendations

Marie Claire Cantone, Tanja Perko, Iztok Prezelj, Eduardo Gallego, Deborah. H. Oughton, Yevgeniya Tomkiv

RICOMET 2015 – 15-17 June,
Brdo Castle, Slovenia



University of Ljubljana





The nuclear accident at Fukushima had similar and different characteristics to the accident in Chernobyl

PREPARE

CHERNOBYL



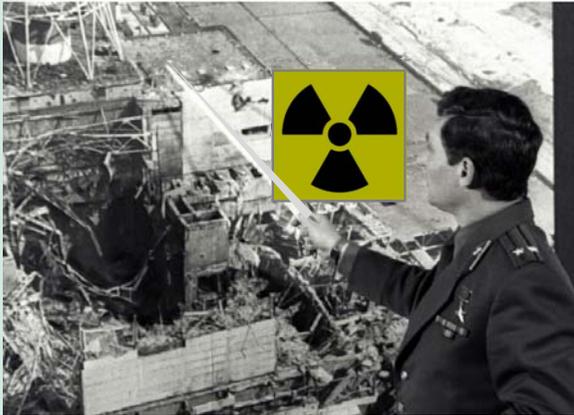
Chernobyl

FUKUSHIMA



řazruřena nuklearka v Fukuřimi (Reuters)

CHERNOBYL



16/06/2015

FUKUSHIMA



01 23 GMT RT

Fukushima

- Tsunami
- rapid implementation of protective measures
- no attributed death from radiation exposure
- published studies concluded radiation health risks are minimal.

Chernobyl

- Human error
- slow in taking protective actions
- 28 highly exposed died in some months
- experts indicated some evidence on increase risk among workers who received higher doses in recovery efforts.

Back into the collective memory to communicate about and explain a nuclear accident to the public



The collective memory will make links between any nuclear event and other major nuclear accidents

PREPARE

The newspaper article contents are in many situations **subjected to the influence of collective memories**, as shared pool of information present in the memories of a small group or of the public community. Moreover when producing a news, the media present it within **a frame that guides the public on how this news should be seen.**

Triandafyllidou (1995)

“Nuclear accident of Chernobyl acquires a prominent position in the collective memory “

Gamson and Modigliani (1989), about the use, in US, of narratives from Three Mile Island (TMI, 1979) accident in framing Chernobyl accident:

“Visually, there were many repeats of imagery from TMI coverage but with several new additions”



Study based on large media content analysis (N=1340) from 6 countries (BE, IT, NO, SI, ES, RU)



How mass media evoked Chernobyl accident to explain Fukushima

PREPARE

H1: Chernobyl nuclear accident will appear in most of the newspapers coverage of the present Fukushima nuclear accident, *despite the fact that the Fukushima carried no direct hazard for the newspaper's audience and the environment.*

H2: *The collective memory* on the Chernobyl accident is recalled in a mass media *to the same extend in countries with severe radiological consequences* as in the countries with no or limited consequences due to the Chernobyl.

H3: *Smaller geographical distance* from the place of a collective memory – Chernobyl (H3a) and *active status of a nuclear energy production* (H3b) or *public attitude towards NPP* of risk perception during (H3c) the present Fukushima nuclear accident *increase the use of narratives.*

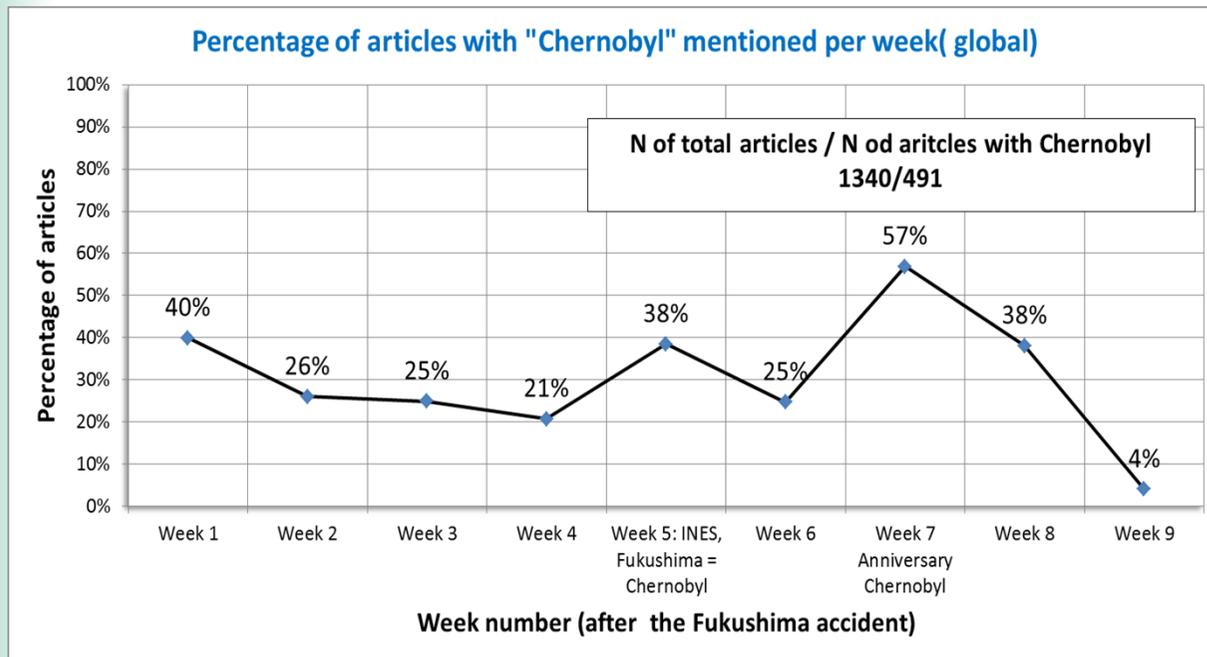
H4: The media in reporting about Fukushima *referred to the Chernobyl accident* to the same amount before increasing the *INES level from 5 to 7*, as they did after the accidents became comparable by using the scale, although is INES scale used for communicating to the public,

H5: The number of *newspapers articles linking Fukushima and Chernobyl* was boosted by *anniversary* journalism during memorizing 25th years of the accident in Chernobyl.



How mass media evoked Chernobyl accident to explain Fukushima *PREPARE*

Frequency of the word "Chernobyl" - to explore whether historical nuclear accident appears in most of the articles on the present nuclear accident, despite the fact that Fukushima carries no direct hazard for the newspaper's audience and environment.



Chernobyl accident appeared in 37% of the articles reporting Fukushima

1 week → 40%

7 week → 57%



How mass media evoked Chernobyl accident to explain Fukushima

“Chernobyl” in the title of the articles from the first days

PREPARE



The ghost of Chernobyl

(12 March , Belgium)

Fearing Chernobyl disaster

(13 March, Norway)

Chernobyl casts its shadow over Japanese land

(13 March, Spain)

Super-fireman’s fight, with the Chernobyl nightmare

(13 March , Italy)

Chernobyl will not happen again

(14 March, Russia)

Frykter Tsjernobyllkatastrofe



» Le squadre
La battaglia dei superpompieri con l’incubo di Chernobyl

L’agenzia per la sicurezza nucleare giapponese li chiama «superpompieri». Sono gli unici che possono avvicinarsi e lavorare nei pressi del reattore numero uno di Fukushima. Tute, protezioni di sicurezza, segnaletori di radiazioni e, soprattutto, rapidi cambi di turno ed esposizioni ridotte al minimo. Il loro compito è tutto sommato semplice: raffreddare la struttura, a ogni costo, per evitare guai peggiori. Ma se si superano i 100 millisievert — più o meno come esporsi a 100 radiografie — i danni da radiazione possono farsi seri. Se si va oltre i 6 mila millisievert, assorbibili in una sola settimana, la sopravvivenza è praticamente impossibile. Insomma, per i superpompieri giapponesi la faccenda suona assai delicata.

Non è possibile, per ora, sapere a che livello di radiazione si sia arrivati a Fukushima. Le autorità rassicurano: dicono che vicino al reattore si è rilevata la presenza di Cesio 137 e Iodio 131, ma che i livelli sono in diminuzione. Se così fosse, la situazione sarebbe simile a ciò che accadde a Three Mile Island il 28 marzo del 1979 (dodici giorni prima sul grande

Il precedente

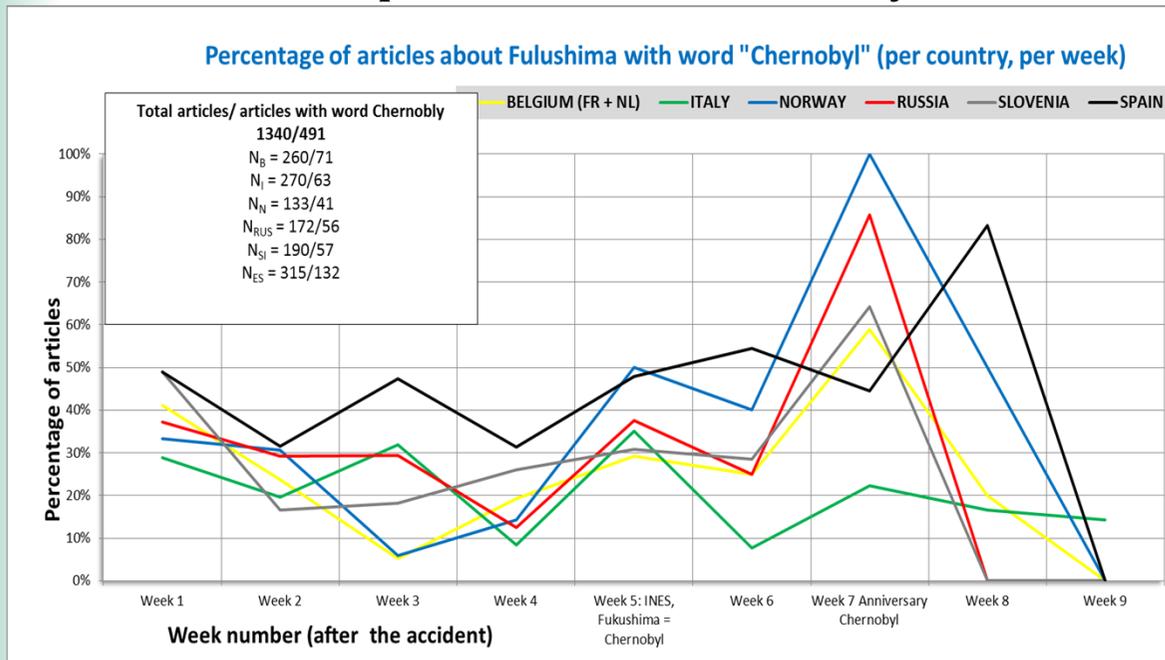
La catastrofe



How mass media evoked Chernobyl accident to explain Fukushima

PREPARE

Frequency of the word "Chernobyl" per country - to explore whether the collective memory is recalled, in a mass media, to the same extent in countries with severe radiological consequences, socio-political and economical consequences, as in the countries with no or limited consequences due to Chernobyl accident.



Spain referred to Chernobyl for 42 % and in first week about in one article over two

Percentage of articles about Fukushima, using "Chernobyl"

Spain	42 %
Russia	32 %
Norway	31%
Slovenia	30%
Belgium	27%
Italy	23%



How mass media evoked Chernobyl accident to explain Fukushima

PREPARE

Japan fights against the clock to prevent its Chernobyl

(El Mundo, 14 March)

Japan fights to prevent another Chernobyl

(El Pais, 16 March)

We did not learn from Chernobyl mistakes

(El Mundo, 17 March)

Allarme nucleare Radiazioni sempre elevate. Il premier Kan: «Ricostruiremo il Giappone»

Fukushima, sale il livello di allerta Soluzione-Chernobyl per i reattori

Da scala 4 a 5, come a Three Mile Island. Un sarcofago coprirà la centrale

DAL NOSTRO INVIATO
OSAKA — Non sarà una «nuova Chernobyl». Ma la soluzione che si prospetta a Fukushima, non appena i reattori «saranno stabilizzati», è identica a quella utilizzata nella centrale ucraina, passata alla Storia (finora) come il peggiore disastro mai avvenuto nel nucleare civile: un sarcofago di cemento che seppellisca per i prossimi secoli quel che resta del materiale fissile «impazzito». I tecnici della Tepco, la criticatissima società giapponese



modo — l'unica speranza? — di tenere sotto controllo le radiazioni potrebbe essere una colata di spessore tale da isolare una volta per tutte i noccioli semituffati. Soluzione comunque tutt'altro che facile da realizzare. A Chernobyl il reattore da avvolgere nella camicia isolante era uno solo. A Fukushima si parla di almeno quattro se non addirittura tutti e sei i calderoni, da tre dei quali continua a uscire un vapore radioattivo, per ora trasportato dal vento verso l'Oceano Pacifico.

« Solidarité avec Fukushima »

L'UKRAINE S'ÉMEUT du sort du Japon. Certains Ukrainiens cependant craignent que l'attention internationale ne se détourne définitivement de Tchernobyl. En tout cas, diverses mesures expérimentées en Ukraine pourront à présent être utilisées au Japon.

REPORTAGE
KIEV
DE NOTRE ENVOYÉ SPÉCIAL

ger de Tour2Kiev, l'une des agences de tourisme qui, à Kiev, proposent des « Tchernotours ». Depuis la catastrophe nucléaire japonaise la demande ne

pour empêcher la contamination par les iodures radioactifs qui, ici, a provoqué des cancers de la thyroïde. »
L'Ukraine a enregistré une forte hausse.

prov, expert nucléaire de Greenpeace. Dès les premières informations sur Fukushima, de nombreux Ukrainiens ont quitté la capitale de Tchernobyl

L'AUTRICHE PIONNIÈRE
« Get out of nuclear » : une campagne européenne

» | **Gli studi dopo Three Mile Island e Chernobyl**

Alterazioni del Dna trasmesse anche ai figli

16/06/2015

Back into the collective memory to communicate about and explain a nuclear accident to the public



The influence on collective memory of *PREPARE* Radiological consequences from Chernobyl

Among the 6 countries analysed

Spain used “Chernobyl” the most frequently in the newspaper about Fukushima, despite the fact it was the less affected of the 6 countries due to the Chernobyl accident, since it was not directly object of deposition of considerable amount of radioactivity, with respect to **Italy** and **Belgium**.

Russia, well known as a country with higher radiological consequences, also frequently involved past nuclear accident to explain the present one.

Moreover the comparison of nuclear risk were not of great importance : articles presenting a radiological comparison of Fukushima accident with historical accident (Windscale, Three Mile Island, Chernobyl, Toka Mura) is no more than 15% (Italy and Spain)



The influence on collective memory of *PREPARE* Socio-political consequences from Chernobyl

Italy is a country with strong socio-political and economic consequences due to the Chernobyl accident and use this reference at lower frequency (23%). In comparison **Spain**, with no significant socio-political consequences, used the same reference most frequently among the analysed countries.

Remarkable, **stronger socio-political and economic consequences** due to the Chernobyl accident in a country seems that don't add more attention in the historical memory in media reporting about the present nuclear accident.

The collective memory on the Chernobyl accident is recalled in the mass media reporting about the Fukushima accident without influence for the level of radiological, socio-political and economic consequences.



The influence on collective memory from **PREPARE** geographical distance



The geographical distance from the place of a collective memory “Chernobyl” does not influence the use of narratives in journalism when reporting about the present accident.



The influence on collective memory of Status of nuclear energy production Public attitude towards NPP of risk perception

PREPARE

Percentage of articles about Fukushima, using "Chernobyl"

Spain	42 %
Russia	32 %
Norway	31%
Slovenia	30%
Belgium	27%
Italy	23%

Belgium - Phase out status of nuclear energy, 2 operating NPP, and
Italy - All NPPs closed down after the referendum, 1987
have a public opinion about NPP, before Fukushima, more favourable among the analysed countries

Belgium - 23% of the population sees NPP as not dangerous;
Italy - 23% rather in favour to the use of nuclear energy.

Spain - Operating 8 reactors; 11.1% of public sees NPP as not dangerous

Russia - Active 33 reactors; 5.5% sees NPP as not dangerous

Norway - No NPP; 16% sees NPP as not dangerous

Slovenia -Active 1 reactor; 9.6 % sees NPP as not dangerous



The influence on collective memory of **Status of nuclear energy production** **Public attitude towards NPP of risk perception**

PREPARE

Countries where public has more negative attitudes to nuclear energy or higher risk perception of NPP (Russia, Slovenia, Spain, Norway) have more often used “Chernobyl” as a reference in the Fukushima reporting, than countries with lower risk perception on NPP (Italy and Belgium).

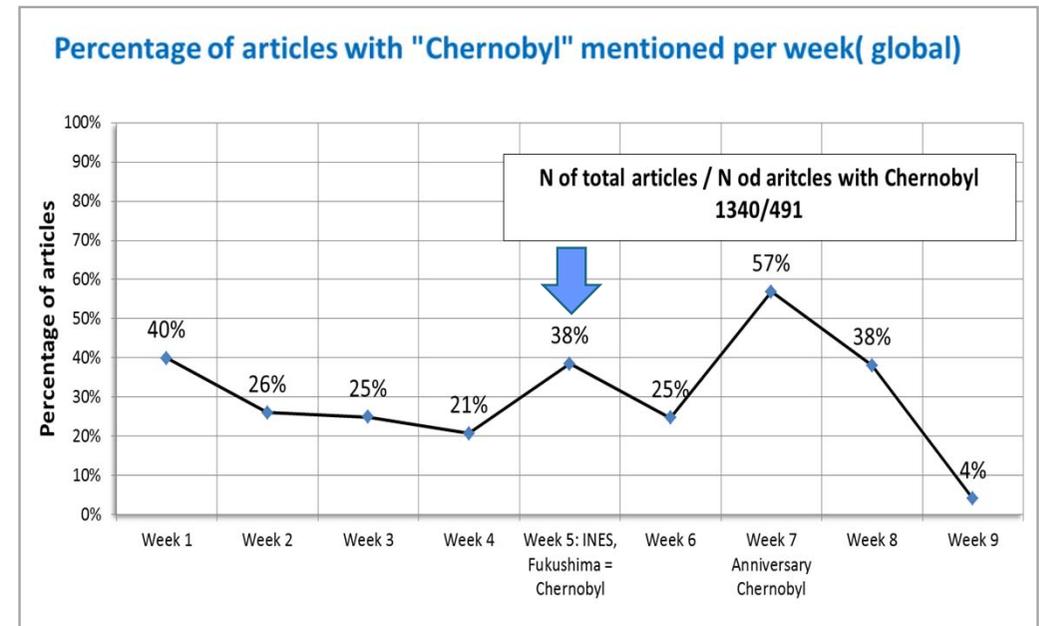
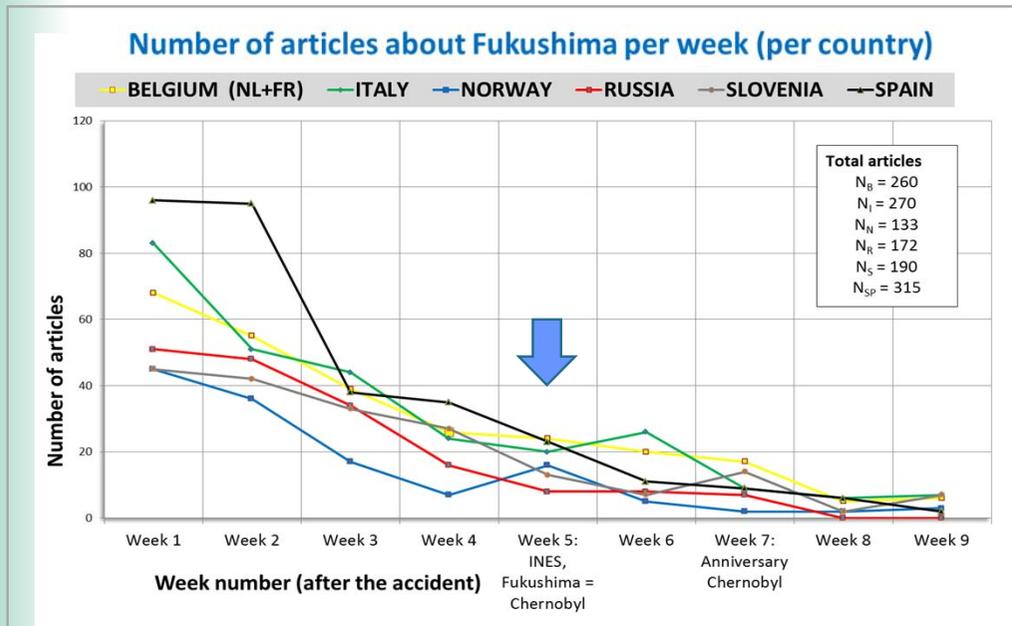


The media interest in the tool for communicating the safety significance of the nuclear event

PREPARE

The INES scale aims to facilitate communication and understanding of nuclear events among technical communities, the media and the public.

INES level 5 'accident with wider consequences' to INES level 7 'major accident' - the same level as the Chernobyl accident - (Week 5 - 12th of April).



% of articles with word 'Chernobyl' in week 5: 29% BE, 35% IT, 50% NO, 38% RU, 31% SI, 48% ES



The media interest in the tool for communicating the safety significance of the nuclear event

PREPARE

Accident on the same level with Chernobyl

(12 April, Aftenposten)

Fukushima is already the Chernobyl of XXI century

(13 April, El Mundo)

Fukushima like Chernobyl, severity level 7

(13 April, Corriere della Sera)

Fukushima was given Chernobyl's level of risk

(13 April, Komsomolskaya Pravda)

Fukushima now on the level of Chernobyl

(13 April, Delo)

Is Fukushima as bad as Chernobyl ?

(13 April, De Standaard)

I precedenti



Chernobyl Ucraina

 Data incidente:
26 aprile 1986

 Livello di incidente:
7 (massimo)

Anno di entrata in servizio del reattore: **1983**

Durante un test la reazione atomica andò fuori controllo. L'esplosione scoperchiò il nocciolo e ne seguì un incendio. Fu rilasciata un'enorme quantità di materiale radioattivo

 **Gli effetti sull'uomo**

68 le vittime a causa dell'incidente

134 soccorritori hanno contratto la sindrome da radiazione acuta (47 morti)

4.000 i casi stimati di morte per tumori o leucemie, collegati al disastro, secondo l'Oms

116.000 gli evacuati



Chernobyl anniversary journalism memorizing 25th years of the accident

PREPARE



The number of newspapers articles linking Fukushima and Chernobyl was boosted by the anniversary journalism during memorizing 25th years of the accident in Chernobyl in the **week 7** and to some extent also in **week 8**.

% of articles with word 'Chernobyl' in week 7:

59% BE, 22% IT, 100% NO, 86% RU, 64% SI, 44% ES

supérieures ; utiliser des engrais riches en potassium pour que les plantes fab-
tut ukrainien de radioagronomie. Pour être efficaces, ces mesures exigent con-
faimentation des vaches d'une ration de foin de Prusse. Le césium se colle à

Nucléaire / Commémoration mondiale ce mardi, sur fond de craintes au Japon

Tchernobyl, 25 ans de brouillard

L'ESSENTIEL
En avril 1986, l'explosion d'un réacteur nucléaire à Tchernobyl provoqua une catastrophe dont les retombées restent floues.
Un quart de siècle plus tard, l'accident de Fukushima relance le débat sur l'avenir du nucléaire civil.



doigt, mais aussi le lobby nucléaire, réticent à analyser les conséquences à long terme de la catastrophe. En 2005, plusieurs agences de la Santé, dont l'Organisation mondiale de la Santé, ont estimé que 4.000 personnes sont décédées des suites d'une exposition à la radiation, un bilan que les écologistes jugent sous-estimé.
Ce rapport est contesté par l'UNSCEAR, comité scientifique des Nations Unies sur les effets des radiations atomiques, qui ne reconnaît que 21 morts d'opérateurs et de pompiers directement imputables aux effets de la radiation. Dans son dernier rapport en février 2011, l'UNSCEAR fait aussi état de 6.000 cas de cancer de thyroïde dont 15 mortels dus à la consommation par des enfants de lait contaminé. « Il n'y a pas d'autres preuves convaincantes » d'autres effets, affirme la même source.
Selon Greenpeace, en revanche, au moins 100.000 personnes sont mortes avant 2005 en Ukraine, au Bélarus et en Russie des suites de la contamination radioactive (cancers, atteintes au système immunitaire, maladies cardiaques...), a déclaré à l'AFP Ivan Blokov, responsable de l'ONG en Russie.
Les accidents au Japon ont fait revivre le cauchemar nucléaire et ont eu des répercussions politiques en Occident, où Tchernobyl

CÔTE D'IVOIRE
300.000 euros de g...
Le Premier ministre Yves Létourneau se rendra lundi à Tallinn et mardi en Ukraine. M. Nkooze, le chef de gouvernement, assistera au sommet sur l'énergie à côté de la ministre de l'Énergie de la République démocratique de la Côte d'Ivoire, l'occasion de l'anniversaire de l'accident de Tchernobyl. L'Union européenne a communiqué mardi la décision du conseil des ministres de l'Union d'accorder un complément de 300.000 euros au Tchernobyl Shelter Fund.

COMBIEN DE VICTIMES a fait la catastrophe de Tchernobyl ? Les estimations varient de 46 morts « attestés » à... 100.000 personnes décédées avant 2005 en Ukraine, Bélarus et Russie... © EPA

In the anniversary week, 100% articles reporting the Fukushima nuclear accident included the world Chernobyl in Norway, and more than 50% in Russia, Slovenia and Belgium.

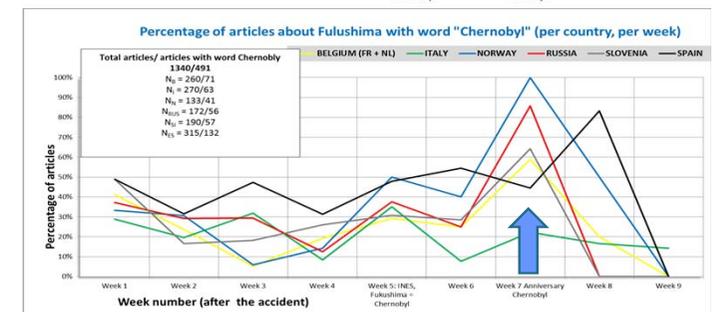
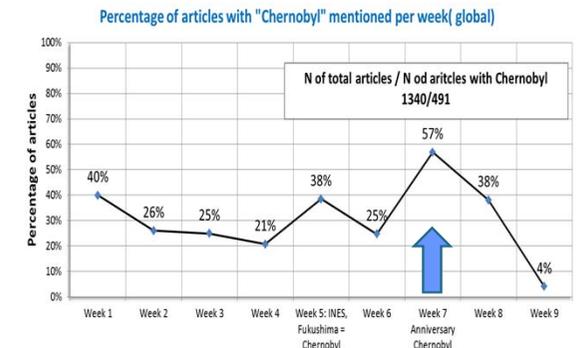
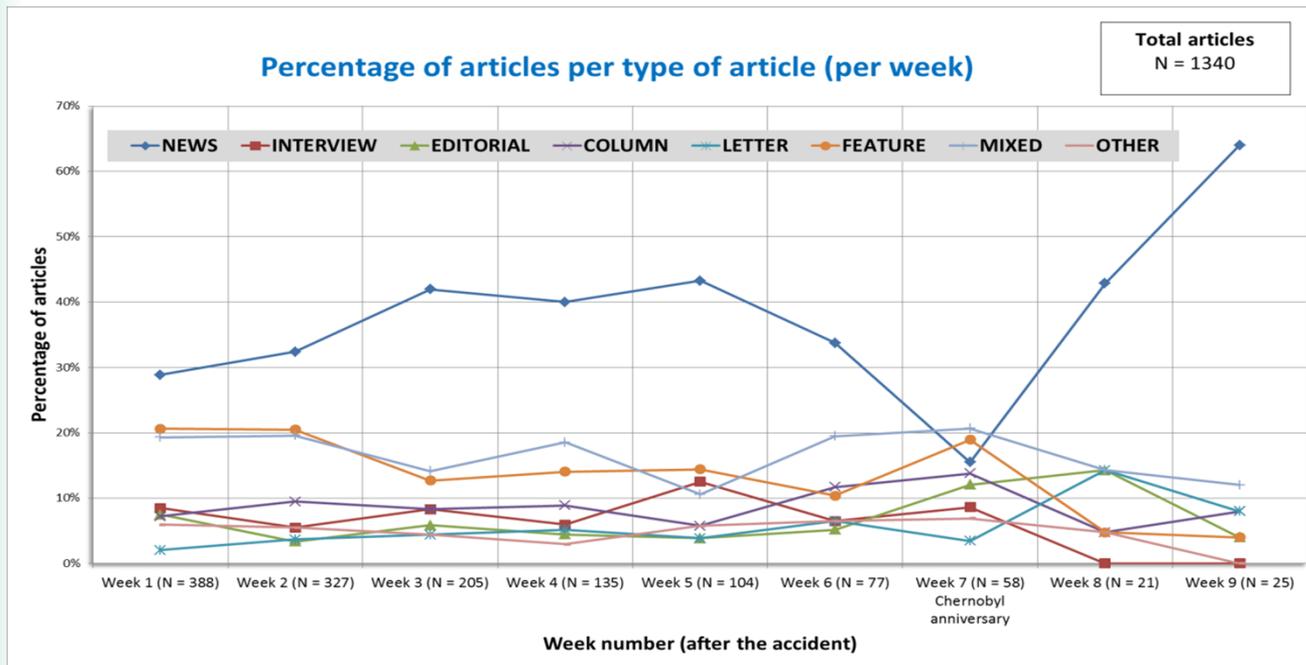
To analyse the way of reporting the anniversary, the type of articles was coded.



Chernobyl anniversary journalism memorizing 25th years of the accident

PREPARE

The media content analysis shows that at short news prevail. The media also offered an in-depth look at what was going on, published as a feature articles during the week 7 ‘Chernobyl anniversary’ with a detailed description and **analysis of the Fukushima nuclear accident and its consequences, comparing with Chernobyl**. They accompanied the information with an **interview** or quotes from various emergency actors, local population and victims.





Conclusion

PREPARE

- The memory on the Chernobyl accident is in more than one third article reporting Fukushima articles in Belgium, Italy, Norway, Russia, Slovenia and Spain.
- Severe **radiological, socio-political and economic consequences** of the Chernobyl accident did not influence the historical memory.
- Moreover, **a smaller geographical distance** to the place of the collective memory **doesn't influence the use of narratives** when reporting about a similar event.
- Journalists from countries where people has **more negative attitude** towards nuclear (Russia, Slovenia, Spain) used the Chernobyl accident as a **reference more often**.



Conclusion

PREPARE

- Newspapers in countries with an **active nuclear energy** industry with many reactors (Russia and Spain) **referred**, in media reporting, about Fukushima **more often to the Chernobyl** accident than newspapers from countries without nuclear energy industry (Italy and Norway).
- Similarly, the newspapers from **country with phase-out nuclear** energy program (Belgium) referred to the Chernobyl accident less often than the newspapers published in the active nuclear energy industry countries.
- The announcement of **INES level 7** –the same level as Chernobyl - generated a significantly high media attention and gave the start for discussions on the comparison between the two accidents.
- The frequency of referring to the Chernobyl accident showed differences between the countries with time after Fukushima accident; the largest differences was in the moment of increased attention, in week 8 and 9 when **the world commemorated the 25^o anniversary** .



Some Recommendations

for improved public communication

- **When appropriate**, use comparison of radiological risks of previous nuclear accidents with radiological risks of the present accident.
- Communicate contextual information such as evacuation plan, stress tests results, **basic knowledge** (e.g. difference between contamination and irradiation) and not only radiological risks.
- Take specifics of the country where you communicate into account (e.g. existence of nuclear installations, **level of public understanding of radiological concepts**).
- **Know your public**: attitudes, risk perceptions, historical memory and address these characteristics in your communication.

PREPARE

