

Overview of the Current Research

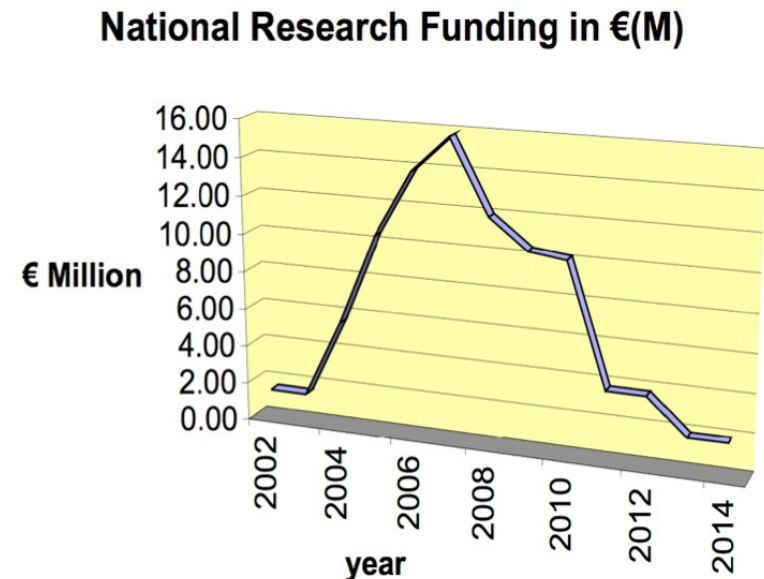
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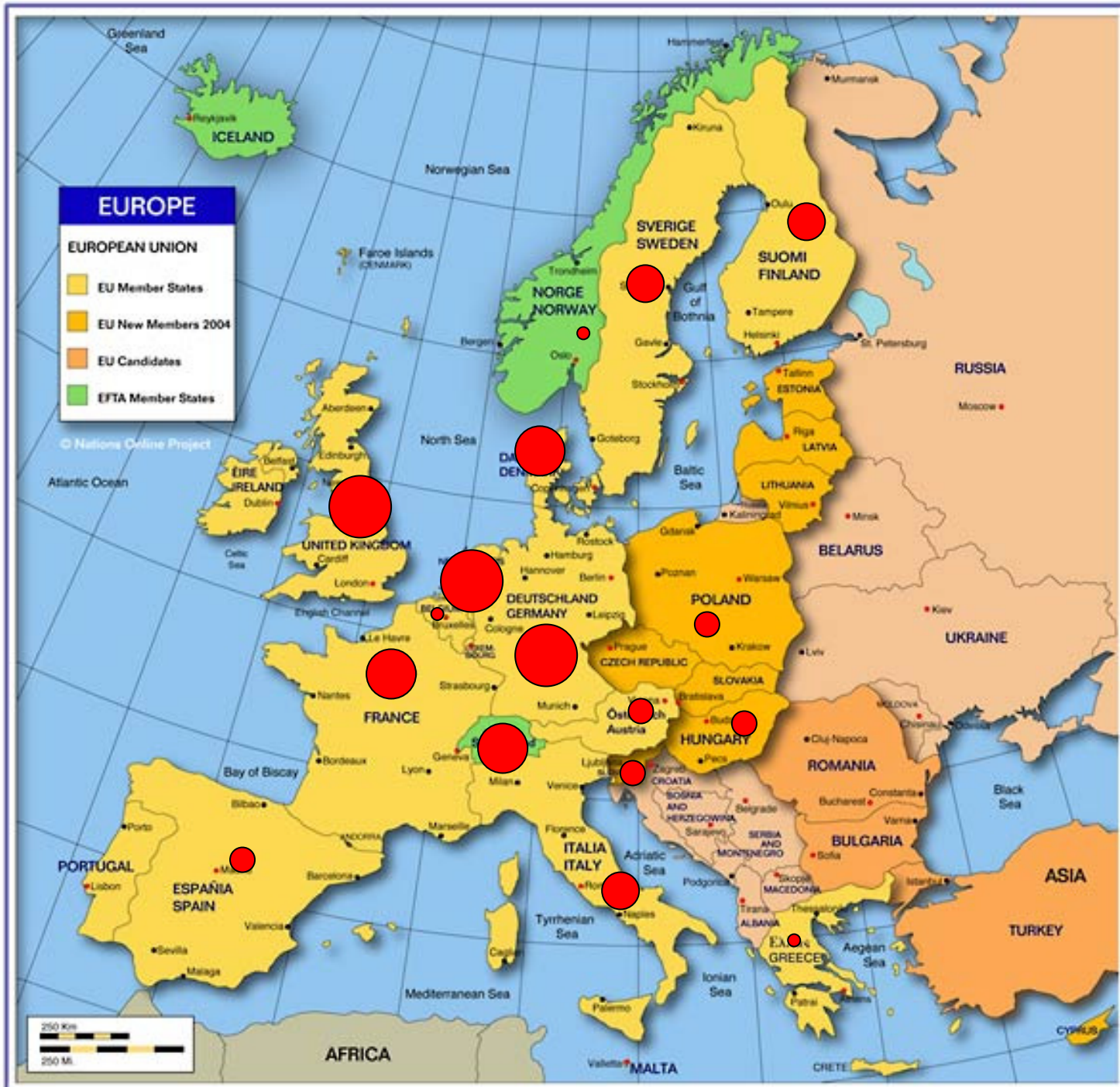


German Telecommunication Research Programme (DMF), Berlin, Germany, June 17-18, 2008

Introduction

- **Health risk assessment**
- Research on “Mobile Telecommunications and Health” is done mainly in Europe
- Funding is decreasing rapidly, but
 - there are still some national programmes ongoing
 - FP7 is going to fund additional research





Knowledge database

- International reports
 - SCENHIR
 - Blue Book of ICNIRP
 - WHO (with EMF-NET: yellow book “Base stations and WLAN”)
 - EMF-NET reports, etc.
- National reports
 - SSI in Sweden, NAS in the USA
 - AFSSET on RFID, 2008
 - MTHR report, etc.

Research

- Research recommendations of WHO are globally followed
- EMF-NET has issued a similar set of recommendations
- National programmes are not fully coordinated



Exposure

- Most of the laboratory exposures have been done
 - whole-body (more relevant to BTS...)
 - with GSM 900 and 1800 signals, or comparable signals in the US and Japan
- EDGE, UMTS and WiFi signals are being explored
- Extrapolation of the knowledge gained with GSM is to be done to the new signals



Mechanistic studies



- No **established** experimental evidence of “non-thermal” effects
- Physical hypotheses being explored but few of them tested experimentally
- The radical-pair mechanism cannot play a role at RF
- The non-linear experiment of Q. Balzano on cells is being performed in the UK
- The two main questions are thus:
 - Is there a “non-threshold” “non-thermal” mechanism?
 - Is SAR the right metric even if effects are only thermal?

In vitro studies

- Genotoxicity
- Gene expression
- ROS
- HSP
- Apoptosis, etc.

- *Transformation*
- *Use of –omics techniques*



In vivo studies

- Cancer (including lifetime exposures)
- Memory
- Blood-brain barrier
- Immune system (e.g., Franco-Russian project)
- Endocrine system

- *Reproduction and development*
- *Young animals*



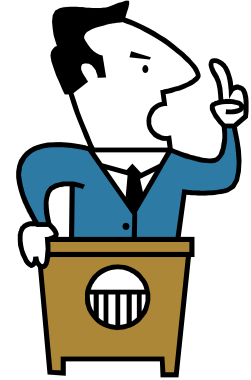
Human studies

- Electrosensitive people
- Cognitive functions
- Inner ear
- EEG and sleep

- *Children*



Conclusions



- Most of the needed “replication” studies have been performed, but many have not been published yet
- Most of the results are negative, i.e. no health effects observed

Long-term low-level multiple-source exposure



Perspectives

- Extrapolation to the new signals is necessary, but
 - should all exposure conditions be used (i.e. modulations, levels, superposition)?
 - which biological models should be used to do systematic testing?



Vielen Dank !



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