

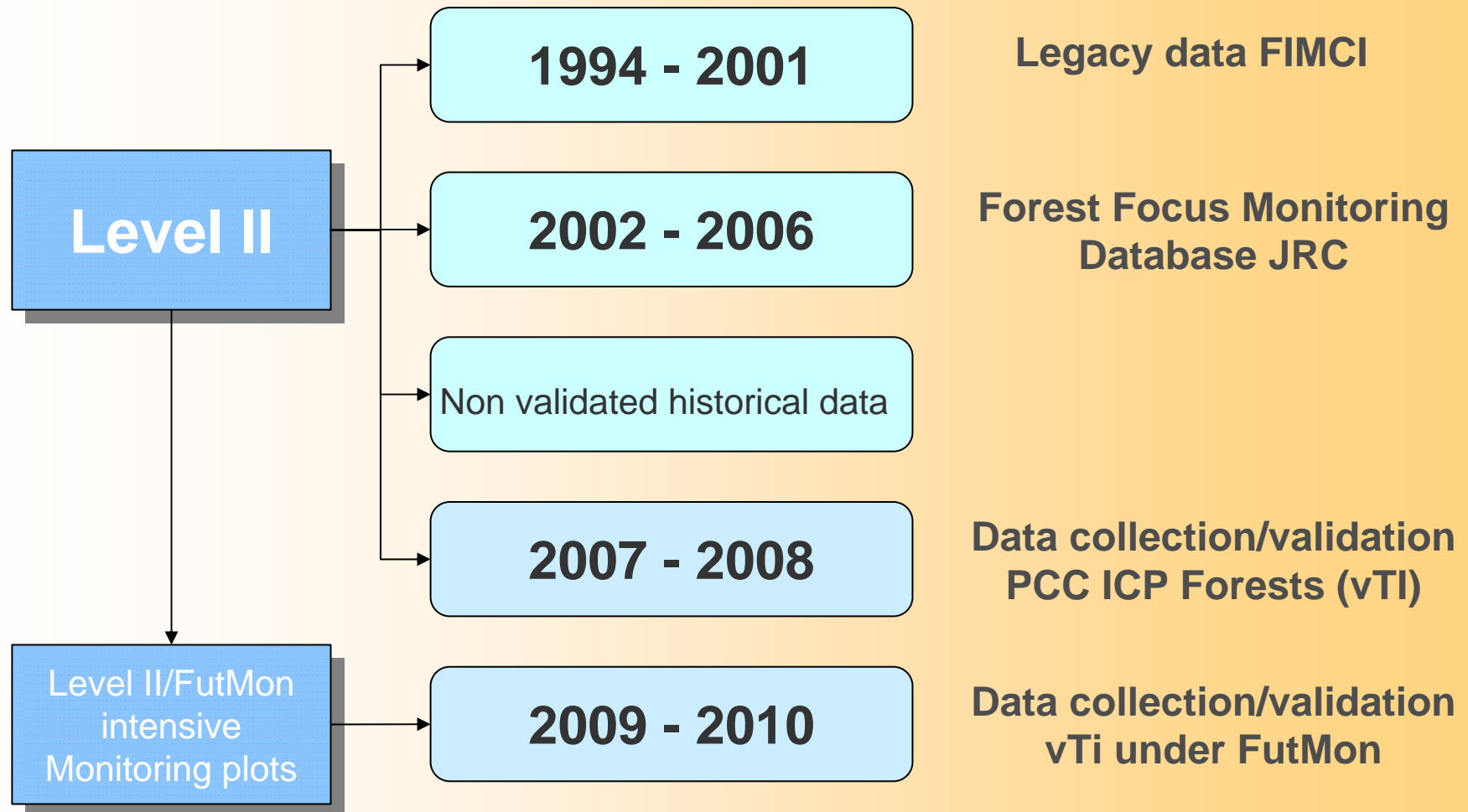
Future data submission and database management

Oliver Granke

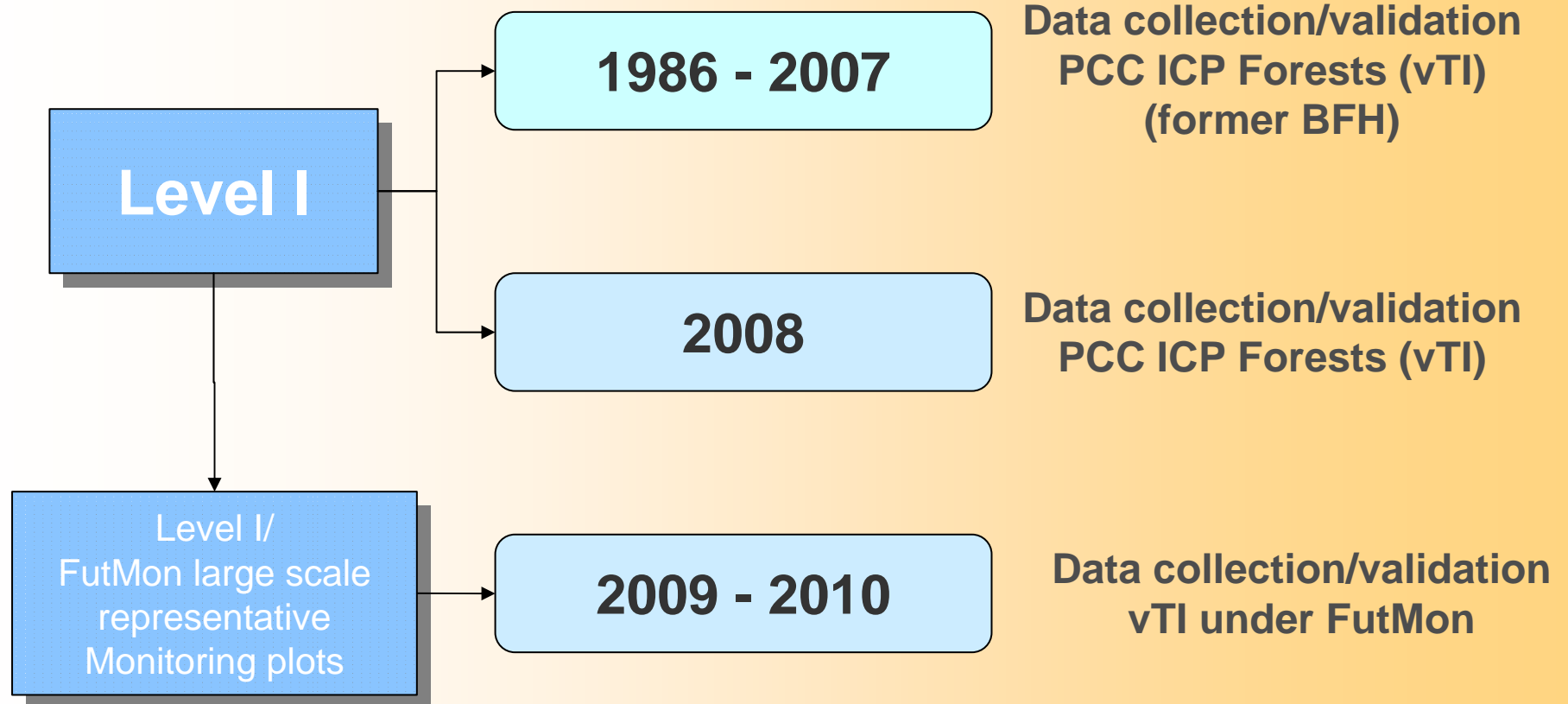
- 1) Forest Monitoring Database: stage of affairs
- 2) Database Structure
- 3) Future Data Submission and Database management
 - i) Data submission and validation
 - ii) time schedule
- 4) Outlook

ICP Forest Workshop on Future Forest Monitoring in Europe
Hamburg, 7. – 8. October 2008

Intensive monitoring plot data



representative monitoring plot data



Data Model Level II:

General Plot Information

General Plot File

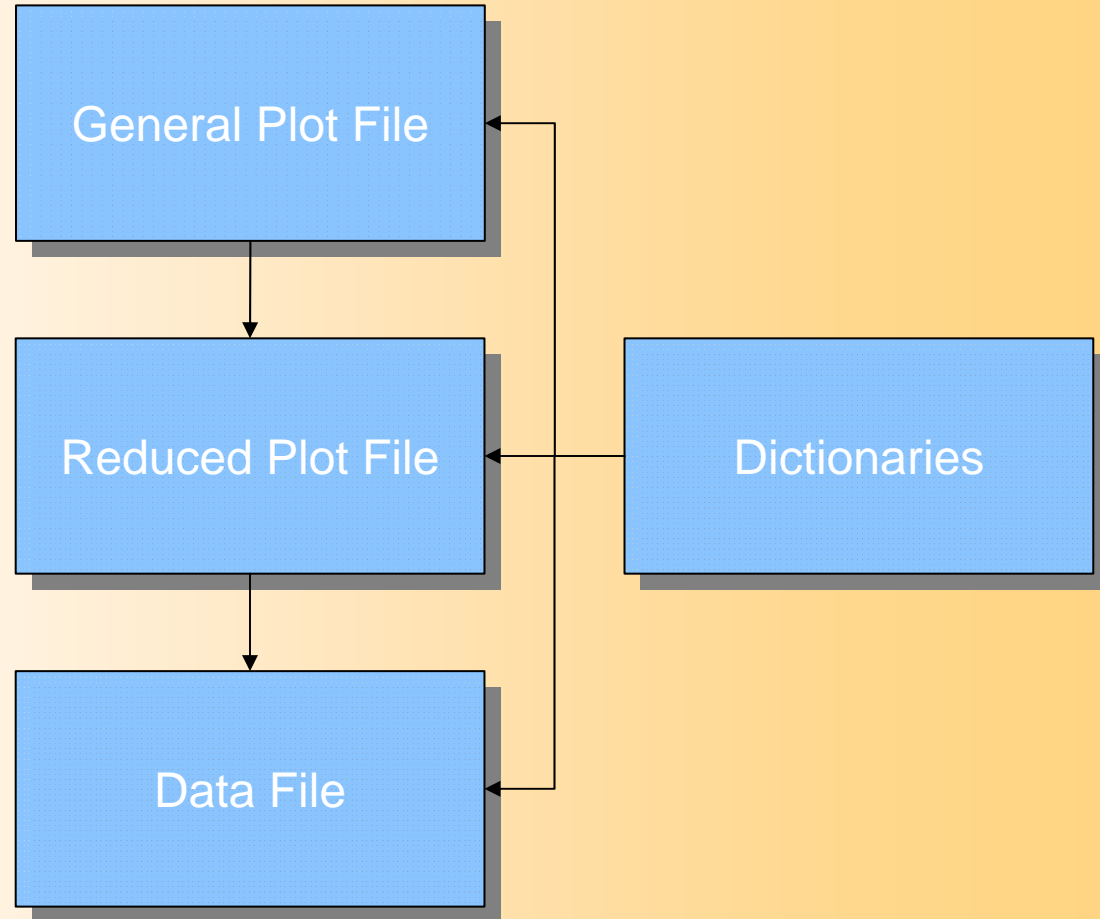
General Survey Information

Reduced Plot File

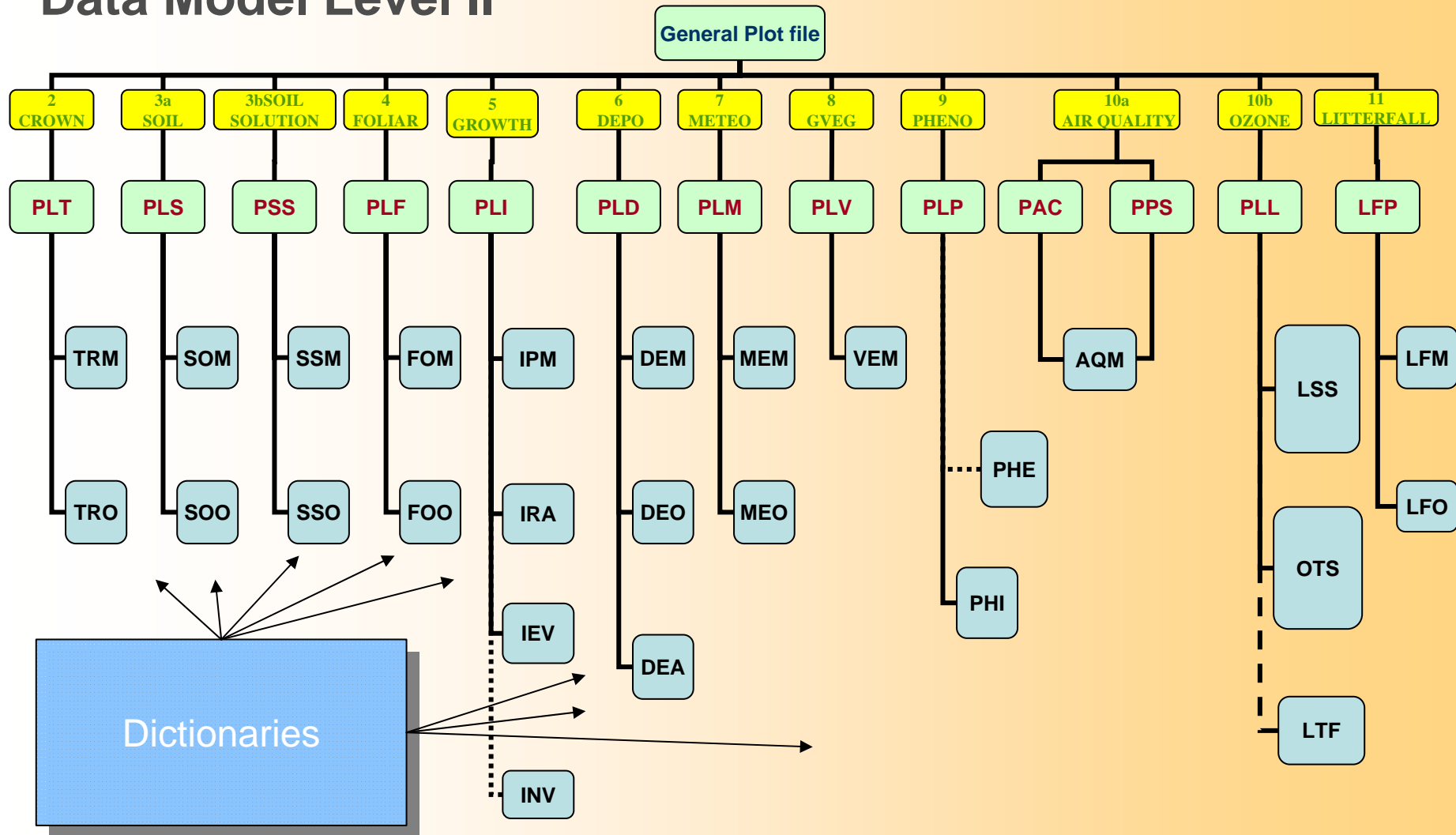
Dictionaries

Survey Data

Data File



Data Model Level II



Conducted Surveys:

Survey	Frequency	No. of plots with data
Crown Condition	annually	822
Soil chemistry	every 10 years	742
Soil Solution chemistry	Continuously	262
Foliar Chemistry	every 2 years	795
Growth and Yield	every 5 years	781
Deposition	Continuously	558
Meteorology	Continuously	235
Ground Vegetation	every 5 years	757
Phenology	several times per year	152
Ambient Air Quality	Continuously	121
Ozone Injury	annually	99
Litterfall	Continuously	145

New surveys under FutMon:

Tree vitality and adaptation (D1):

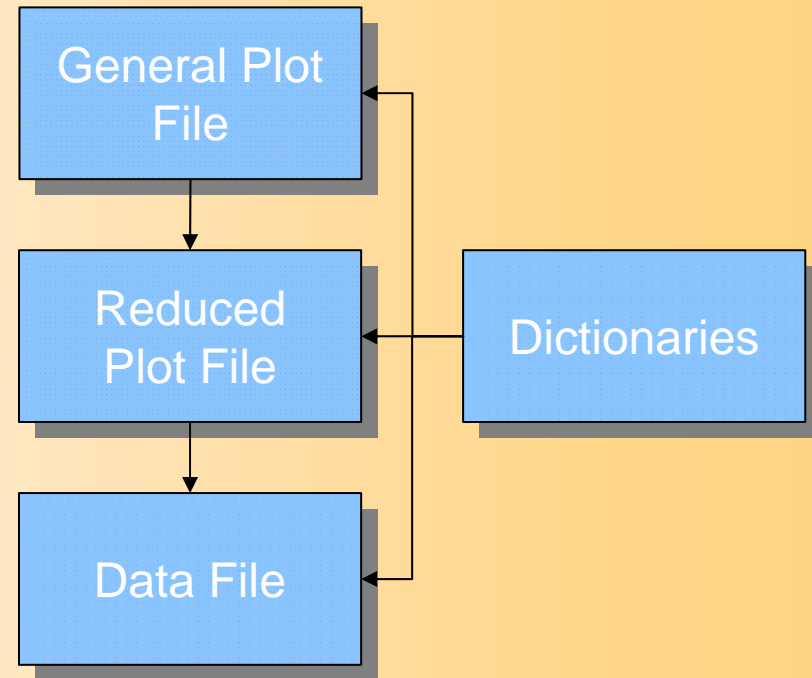
- continuous stem circumference
- phenology: webcams
- leaf area index

Nutrient cycling, critical loads (D2):

- more intensive foliar surveys
- nutrient budgets ground vegetation

Water budgets (D3):

- soil volumetric water content
- matrix potential
- water retention functions
- stand precipitation
- soil temperature
- leaf area index (e.g. LI-COR 2000)

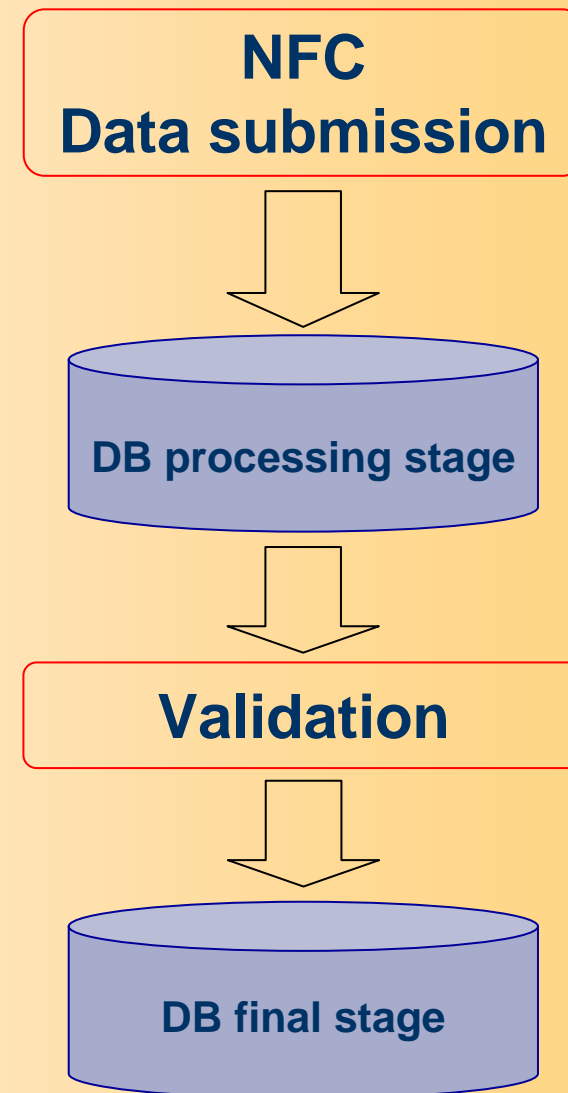


=> **New/adapted manuals and forms must be integrated in the database.**

=> **Support by the Expert panels.**

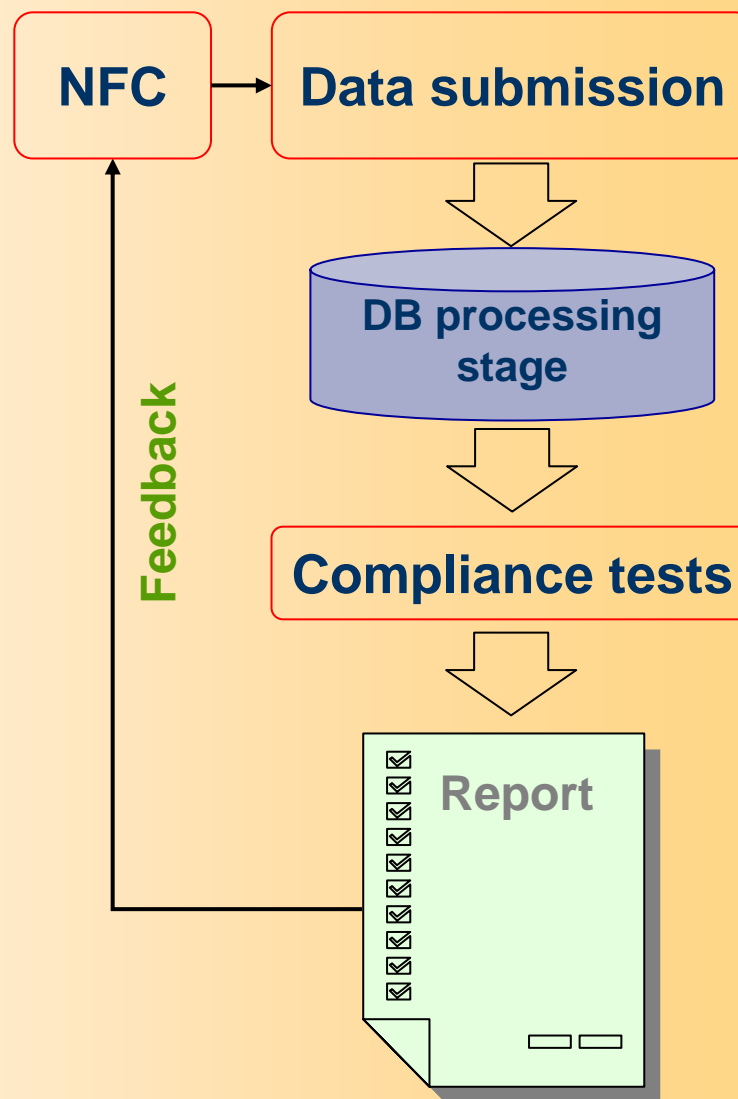
i) Data submission and validation:

- Similar to the well established System of online data submission at the JRC.
- Web- based online data submission.
- Use of fixed formats.
- Different levels of data validation.
- Validation results will be documented in specific reports.
- Values could trigger validation messages (warnings and errors).
- Warnings have to be checked => confirmation or correction.
- Errors have to be corrected.
- Only validated data will be loaded into the final stage of the DB.



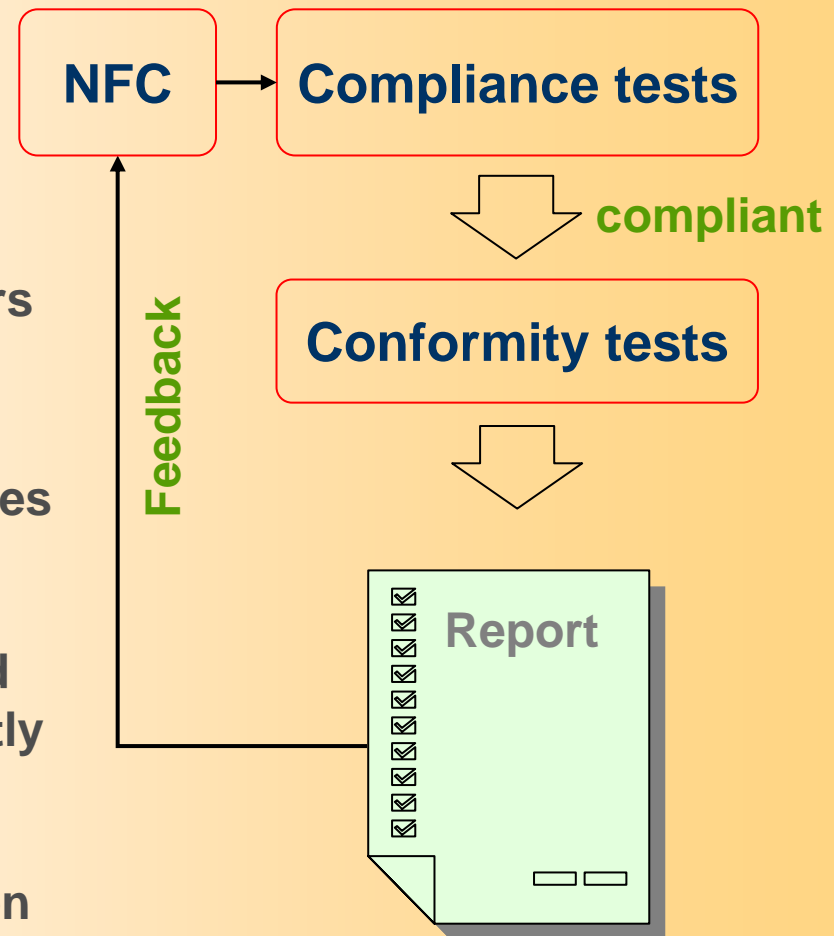
1. Compliance tests:

- validate the format of the data.
- e.g. right positions of digits.
- automatic processes based on defined rules derived from the format of the forms of the manual.
- System generates a Compliance report in real time.
- only compliant data will reach the next validation tests.
- not compliant data have to re-submitted.



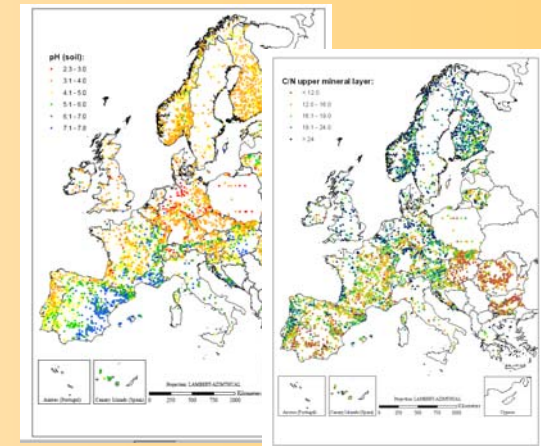
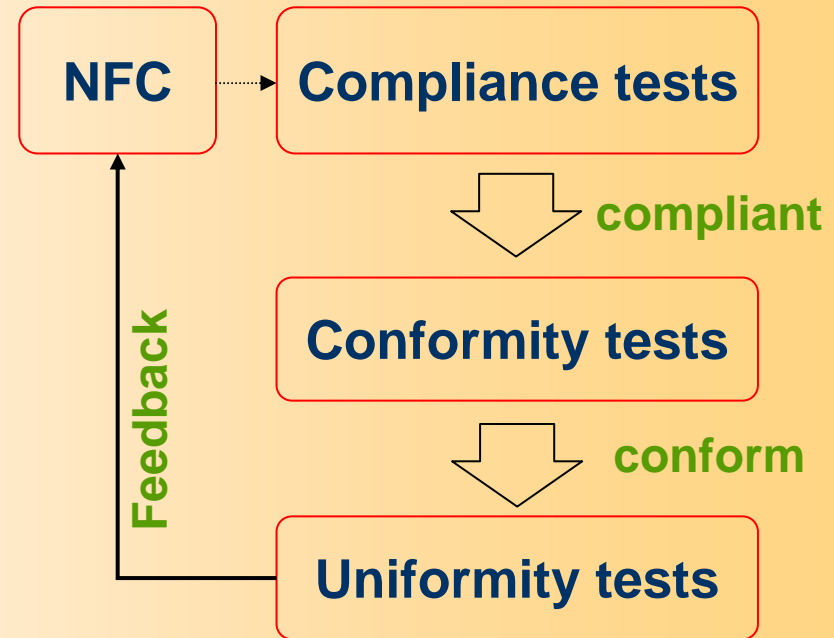
2. Conformity tests:

- validate the plausibility of data.
 - a) Range tests for single Parameters
 - b) Multiple parameter tests
 - c) Time consistency tests
- **NEW PLAN:** The System generates a Conformity report in real time, and
- every message has to be marked as checked and confirmed directly in the report, if correct.
- Otherwise: re-submission.
- Avoids amount of communication and misunderstanding.



2. Uniformity tests:

- validate the plausibility of data.
- Interpretation of maps depicting selected variables:
 - a) spatial distribution
 - b) temporal development (change on a plot in comparison to the last previous years)
- Experts interpret maps and contact if necessary NFCs
- only conform and uniform data will be loaded into the final database.

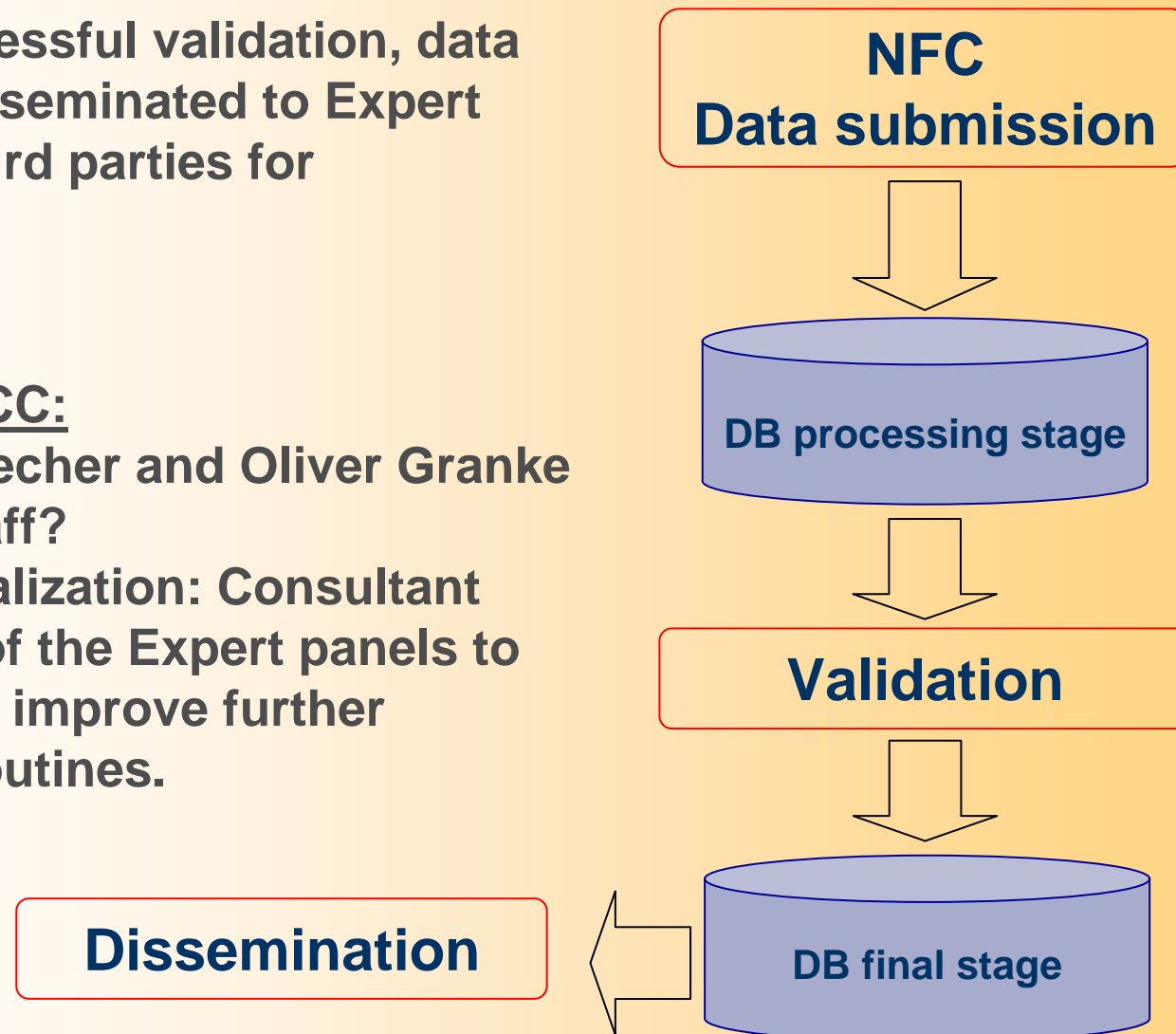


3) Future Data Submission and Database management

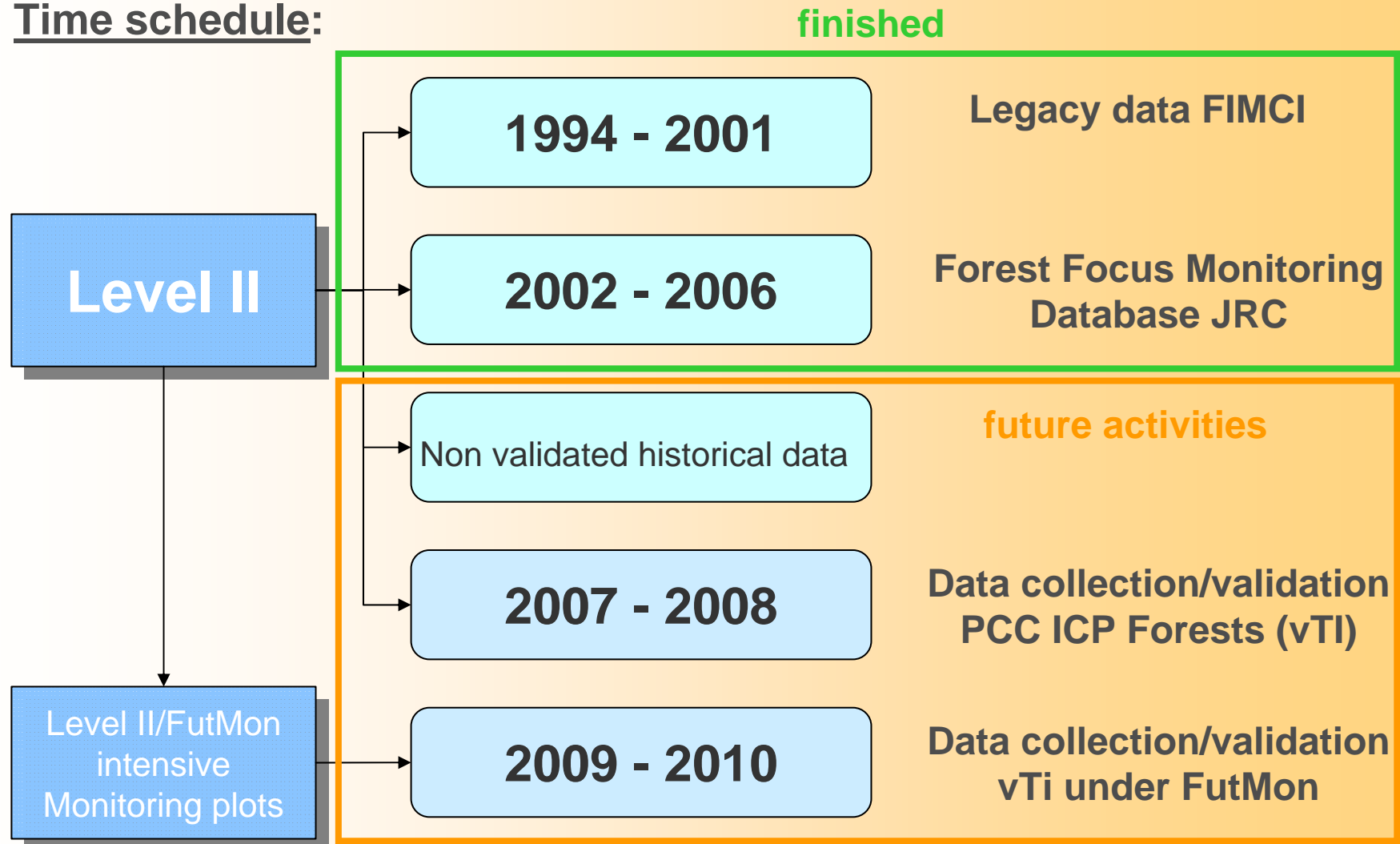
- After a successful validation, data could be disseminated to Expert panels or third parties for evaluation.

Realization at PCC:

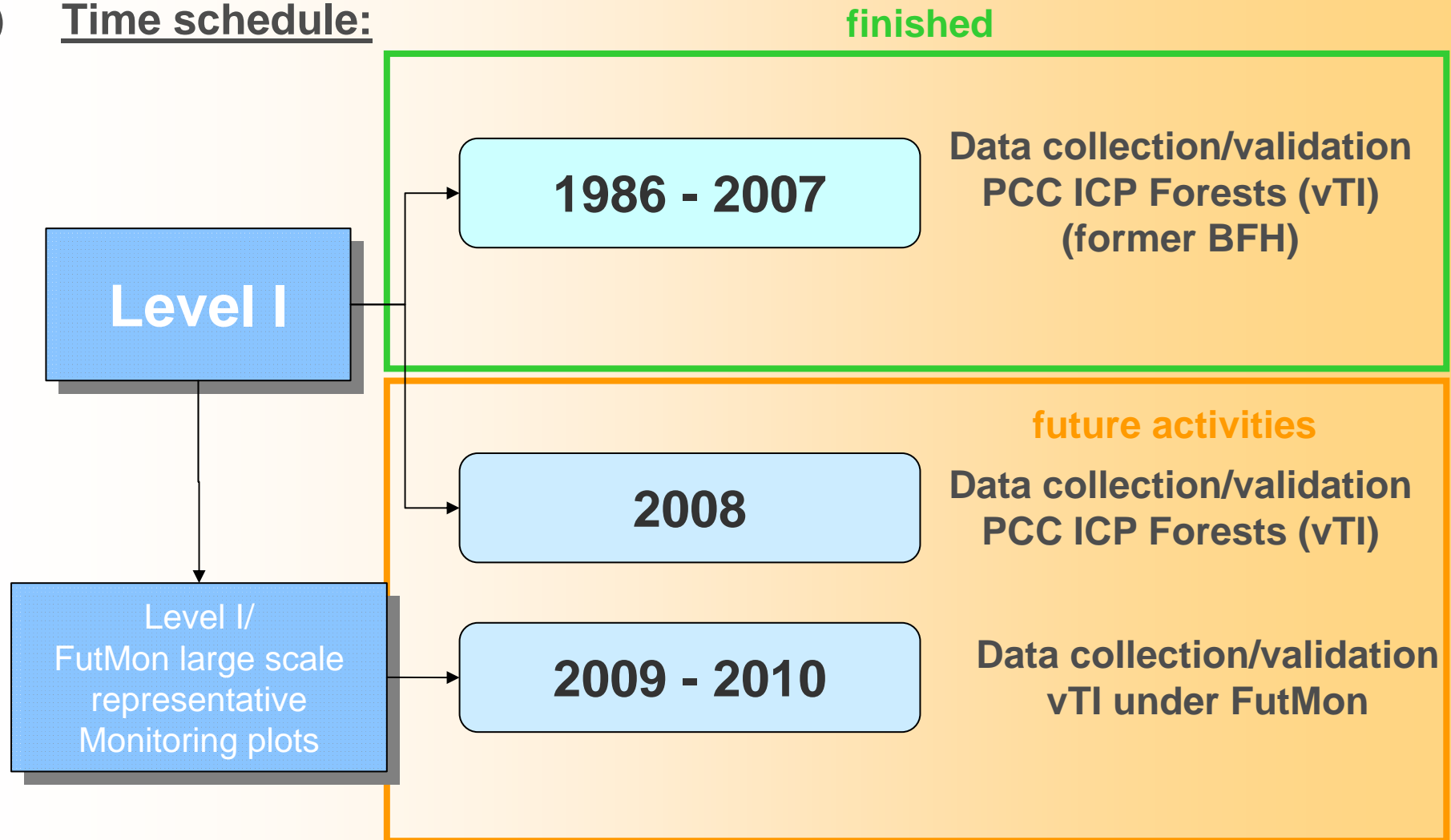
- Dr. Georg Becher and Oliver Granke & further staff?
- technical realization: Consultant
- assistance of the Expert panels to develop and improve further validation routines.



i) Time schedule:



i) Time schedule:



i) Time schedule: Computer system development

	2009												2010											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Web site building				■	■	■																		
Web site maintenance							■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Development of data validation checks	■	■	■																					
Definition Data formats	■	■	■																					
System design	■	■	■																					
System realization				■	■	■	■	■	■															
System tests								■	■															
Legacy data transfer to system								■	■															
System maintenance								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Data submission workshop									■															

Online- Submission and validation System should be operational in **September 2009!**

i) Time schedule: Level I

	2008												2009												2010											
Level I/ Large scale representative monitoring	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Field assessment 2008				■	■	■	■	■	■	■																										
Submission 2008 data										■	■																									
Validation and reporting 2008 data									■	■	■	■	■	■	■	■	■	■																		
Field assessment 2009																■	■	■	■	■	■	■														
Submission 2009 data																						■	■													
Validation and reporting 2009 data																						■	■	■	■	■	■	■	■	■						
Field assessment 2010																												■	■	■	■	■				
Submission 2010 data																																		■	■	■
Validation and reporting 2010 data																																		■	■	■

field assessment
submission phase
validation

- No problems: 2008 Data submission like former years to PCC.
- From 2009: Data submission via online data submission system, including a new developed validation.
- Deadlines for data submission will not change in comparison to former years.

i) Time schedule: from FutMon Proposal “Level II” (IM1+D1+D2+D3)

	2009												2010												2011 (not covered by present project)											
Level II/ Basic plot monitoring (IM1) and Demonstration projects	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Field assessment 2009	[Blue]																																			
Data Submission 2009 data									[Yellow]																											
Data Validation and reporting 2009 data									[Green]																											
Field assessment 2010													[Blue]																							
Data Submission 2010 data													[Yellow]																							
Data Validation and reporting 2010 data													[Green]				[Light Green]																			

field assessment
submission phase
validation

Data Monitoring year 2009:

- Data submission deadline for FutMon ‘Level II’ plots: 15/09/2010
- Official data submission deadline for Level II plots which are only part of ICP Forest (non-FutMon plot) is still the 15th December of the subsequent year: 15/12/2010
- Data validation of the 2010 data is still unclear.

i) Time schedule: 2007 and 2008 Level II data?

=> Proposal: use of the online submission and validation system!

	2009												2010												2011 (not covered by present project)											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
System operational																																				
Level I data Submission 2009																																				
Level I Validation and reporting 2009 data																																				
Level I Data Submission 2010 data																																				
Level I Validation and reporting 2010																																				
Level II Data Submission 2009																																				
Level II Data Validation and reporting 2009																																				
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Data Submission 2007 data																																				
Data Validation and reporting 2007 data																																				
Data Submission 2008 data																																				
Data Validation and reporting 2008 data																																				

submission phase

validation

- 2007 Data submission: **16/09/2009 – 15/11/2009** (former deadline: 15/12/2008)
 - 2007 Data validation and (reduced) reporting: **16/11/2009 – 31/01/2010**
 - 2008 Data submission: **01/02/2010 – 31/04/2010** (former deadline: 15/12/2009)
 - 2008 Data validation and (reduced) reporting: **01/05/2010 – 31/07/2010**
- ⇒ ready for time consistency checks for the 2009 data!
- 2009 Data submission: **01/08/2010 – 30/09/2010** (only 2 month!) => ok?

Summary and Outlook:

- Migration of validated data from FIMICI and the JRC into the new database.
- Integration the Level I data into the new database.
- Development of a new web-based data submission, validation and dissemination system.
- The System is based on the established system running at the JRC.
- Still open question: how to deal with the non-validated historical data?
- QA/QC – Implementation into the database?

Thanks for your attention!