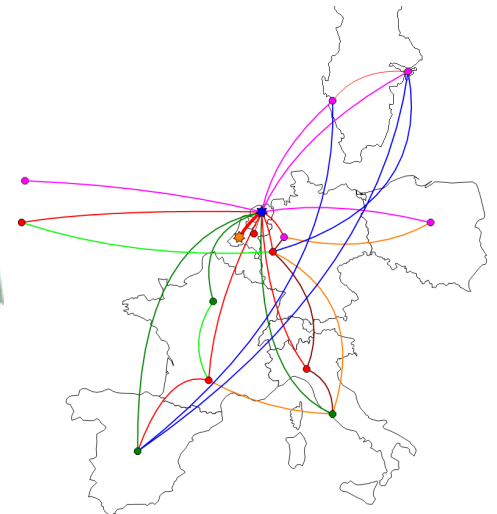


# HIFI ICC in Post Operations

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# Post Operations: Motivation

## »Beneficial Phase:

- IRAS, ISO, SPITZER
- Focus efforts to produce the best archive possible for the mission.

## »Activities:

- Consolidate ideas about processing which arose during operations but could not be properly followed up.
- Improve pipeline software to incorporate these ideas
- Finalize documentation of both the standard processing (pipeline) and the kinds of effects which may still be present in the data.
- Document for astronomers “best guess” approaches for mitigating issues.
- Support continuing astronomer support activities of HSC during post operations.



# Assumptions

- » This version is a draft. The work packages are still being detailed and the planning needs discussion within the HIFI ICC (Co-location October 1-5).
- » HIFI Post-operations are three years.
- » Most operations interfaces will remain: Hence the HIFI ICC will interact with the HSC in much the same manner as operations.
  - Herschel products are produced at the HSC.
  - Software and direct community support is provided to the astronomical community via the HSC.
  - HIFI ICC will provide updated software to the HSC
  - HSC will perform the reprocessing.
- » HIFI ICC only exists as an entity up to the end of HIFI Post-operations (March 31<sup>st</sup> 2016)
- » ESA Archive will be the sole long term repository of all information.



# Objectives and Phasing

»Three phases for Herschel Post Operations:

- Initial ramp down (3 months)
- Main post-ops
- Handover (last 6 months)

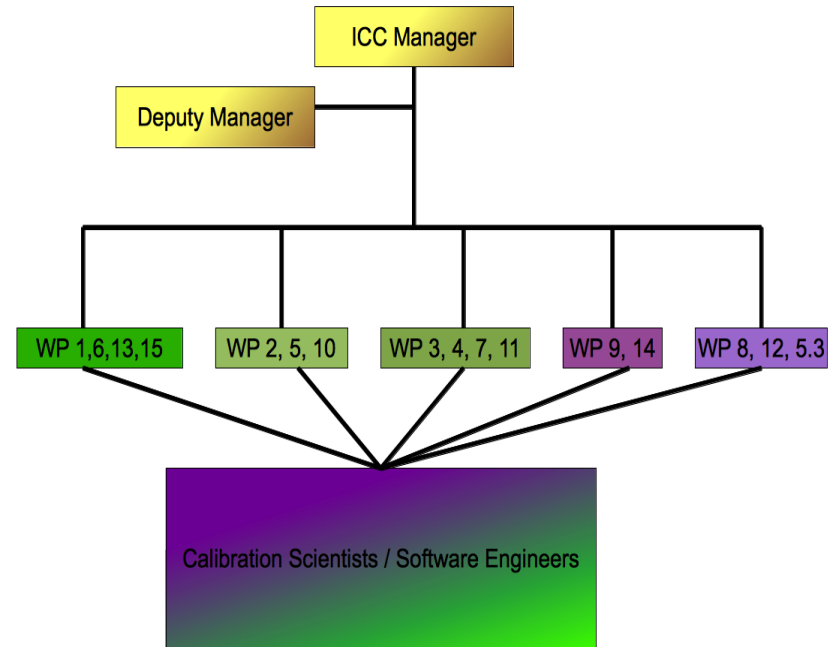
»HIFI ICC is active in Post operations for the first two of the these phases.

- HIFI Post operations will be from March 31<sup>st</sup> 2013 to March 31<sup>st</sup> 2016  
→ HIFI post operations finishes before Herschel post operations.



# HIFI ICC organization

- » 1 Lead for each WP (across 5 institutes)
- » Calibration Scientists and Software Engineers participating in more than one WP
- » WP status will be maintained on a Wikki
- » Frequent (monthly or bi-monthly status meetings of all leads and management team).





# Resources, Support and Ground Segment

»HSC maintains Operations Telemetry Database and Product Archive.  
Database propagated to SRON

•SRON DB further propagated to Köln, Waterloo and NHSC.

»SRON maintains cluster workstations and internal wikki pages.

»HIFI ICC participates in:

- CCBs (software maintenance lead),
- Editorial board, (documentation lead)
- Herschel calibration steering group (ICC rep)
- DP user's group (ICC rep).
- Ground Segment management groups (ICC management team)

»HIFI ICC anticipates participation and support of science and data workshops.



# Tasks in Post Operations

## »15 Work Packages

- 500 total staff months effort
- 400 staff months of Calibration Scientist investigations
- 100 staff months of Software Engineer
- Most workpackages are priority 1 (22 staff months at priority 2)
  - Work packages will be updated and clarified and prioritized within the package itself.

## »Staffing profile

- ICC remains highly distributed (over 8 different institutions).
- Each center provides estimates of available FTEs.
- Initial indication show **staffing level** and stated interest in WP are **consistent** with HIFI Pops plan.



# Work Packages

»Investigations and Applications to improvements in HIFI data. (leads and priorities are identified)

- Data-mining (Köln: priority I)
- LO investigation (NHSC: priority I)
- Optical SW Model (SRON: priority I)
- Implementation of SW mitigation (SRON: priority I)
- Deconvolution (NHSC: priority I)
- Final Determination of HIFI Sideband Ratio (Köln: priority I)
- Beam properties (SRON: priority I)
- Automated line identification (IRAP: priority I)
- Continuum per observation mode (NHSC: priority I)
- Error Computation, Propagation and Consistency (Köln: priority I)





# Work Packages Continued

- Pipeline Maintenance and Upgrades (Waterloo: priority I)
  - Some work packages already identify software development effort, this covers the general impact of calibration updates to the HIFI pipeline.
- Documentation (Waterloo: priority I)
- Product Validation and Testing (Waterloo: priority I)
  - This covers testing of HCSS releases.
- Alternative calibration schemes (Bordeaux: priority II)
- SEU investigations (Köln: priority II)
- Use science data for calibration purposes (SRON: priority II)
- Astronomer Support (helpdesk, workshops, webinars etc. **(to be detailed at HIFI co-location))**)



# Staffing Breakdown: Calibration Scientists

WP	Title	Total Estimated	Year 1	Year 2	Year 3	Total Comited CS to WP
@3.1.1.	Data-mining	60	34	23	7	64
@3.1.2.	LO Investigation	24	9	8	6	23
@3.1.3.	Optical SW Model	36	14	15	7	36
@3.1.4	Implementation SW mitigation	24	11	8	6	25
@3.1.5.	Deconvolution	18	7	6	5	18
@3.1.6.	SBR	28	8	9	8	25
@3.1.7.	Beam Properties	33	13	11	9	33
@3.1.8.	Maintenance	0	0	0	0	0
@3.1.9.	Line Indetification	9	4	3	2	9
@3.1.10.	Continuum	54	21	18	15	54
@3.1.11.	Science-calibration	4	2	1	1	4
@3.1.12.	Documentation	35	14	9	12	35
@3.1.13	Error Computation	33	14	16	14	44
@3.1.14	Altrnative Calibration Schemes	7	6	2	1	9
@3.1.15	SEU Investigation	6	1	2	2	5
@4.1	Management	6	2	2	2	6
@5.3	Product Verification	12	4	4	7	15
<b>Staff Months</b>		<b>389</b>	<b>164</b>	<b>137</b>	<b>104</b>	<b>405</b>
<b>FTEs</b>		<b>32.42</b>	<b>13.67</b>	<b>11.42</b>	<b>8.67</b>	<b>33.75</b>

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# Staffing Breakdown: Software Engineers

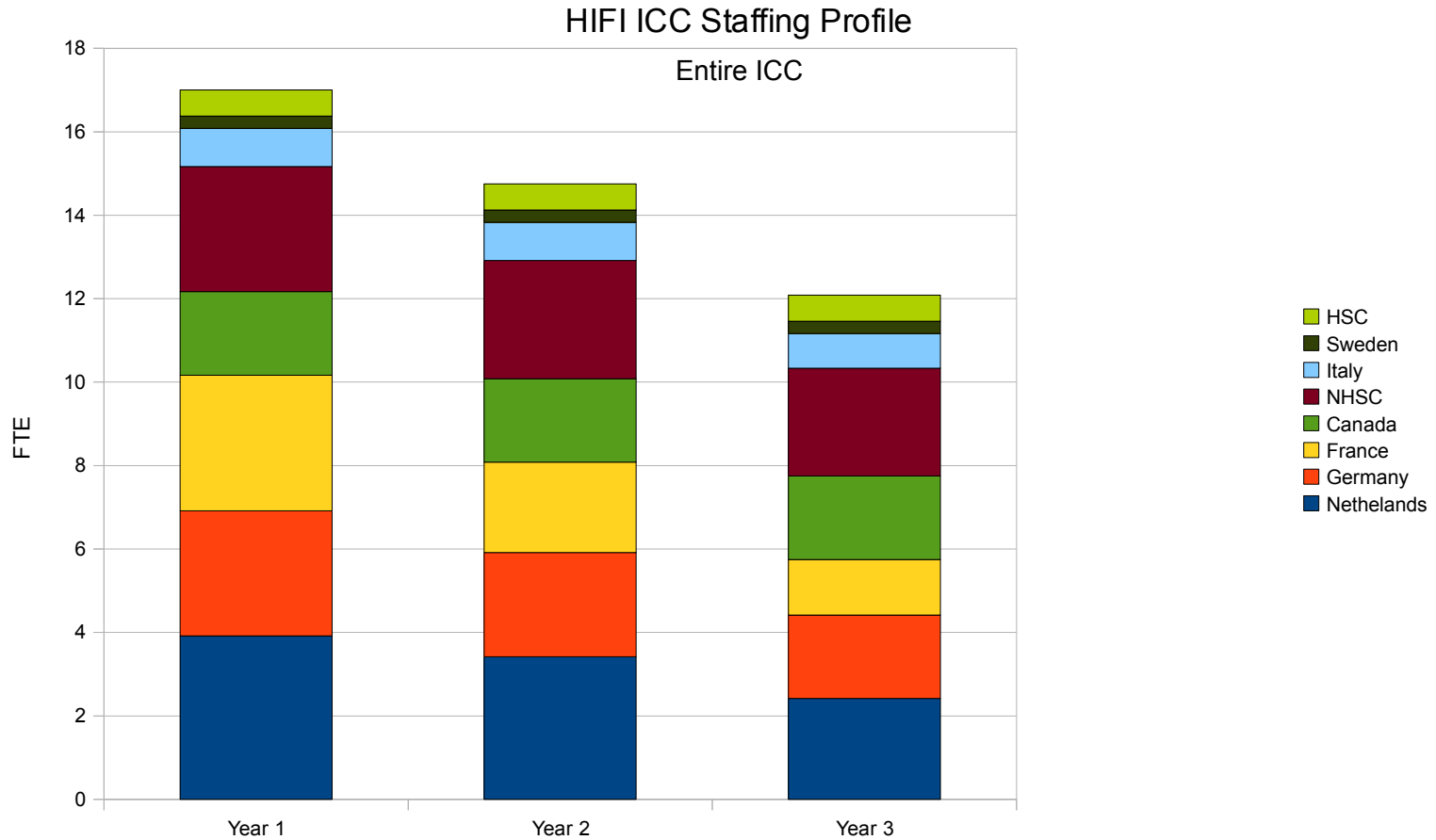
WP	Title	Total Estimated	Year 1	Year 2	Year 3	Total Comited SE to WP	
@3.1.1.	Data-mining	4		2	2	0	4
@3.1.2.	LO Investigation	1		1	0	0	1
@3.1.3.	Optical SW Model	0		0	0	0	0
@3.1.4	Implementation SW mitigation	14		3	6	8	17
@3.1.5.	Deconvolution	12		4	4	4	12
@3.1.6.	SBR	2		2	1	0	3
@3.1.7.	Beam Properties	2		0	1	1	2
@3.1.8.	Maintenance	42		15	15	14	44
@3.1.9.	Line Indetification	11		3	3	5	11
@3.1.10.	Continuum	6		2	2	2	6
@3.1.11.	Science-calibration	3		2	0	1	3
@3.1.12.	Documentation	3		2	1	2	5
@3.1.13	Error Computation	6		2	3	3	8
@3.1.14	Altrnative Calibration Schemes	0		0	0	0	0
@3.1.15	SEU Investigation	2		1	1	0	2
@4.1	Management	0		0	0	0	0
@5.3	Product Verification	1		1	1	1	3
<b>Staff Months</b>		<b>109</b>		<b>40</b>	<b>40</b>	<b>41</b>	<b>121</b>
<b>FTEs</b>				<b>3.33</b>	<b>3.33</b>	<b>3.42</b>	<b>10.08</b>

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# Staffing profile HIFI in Post Ops.



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