

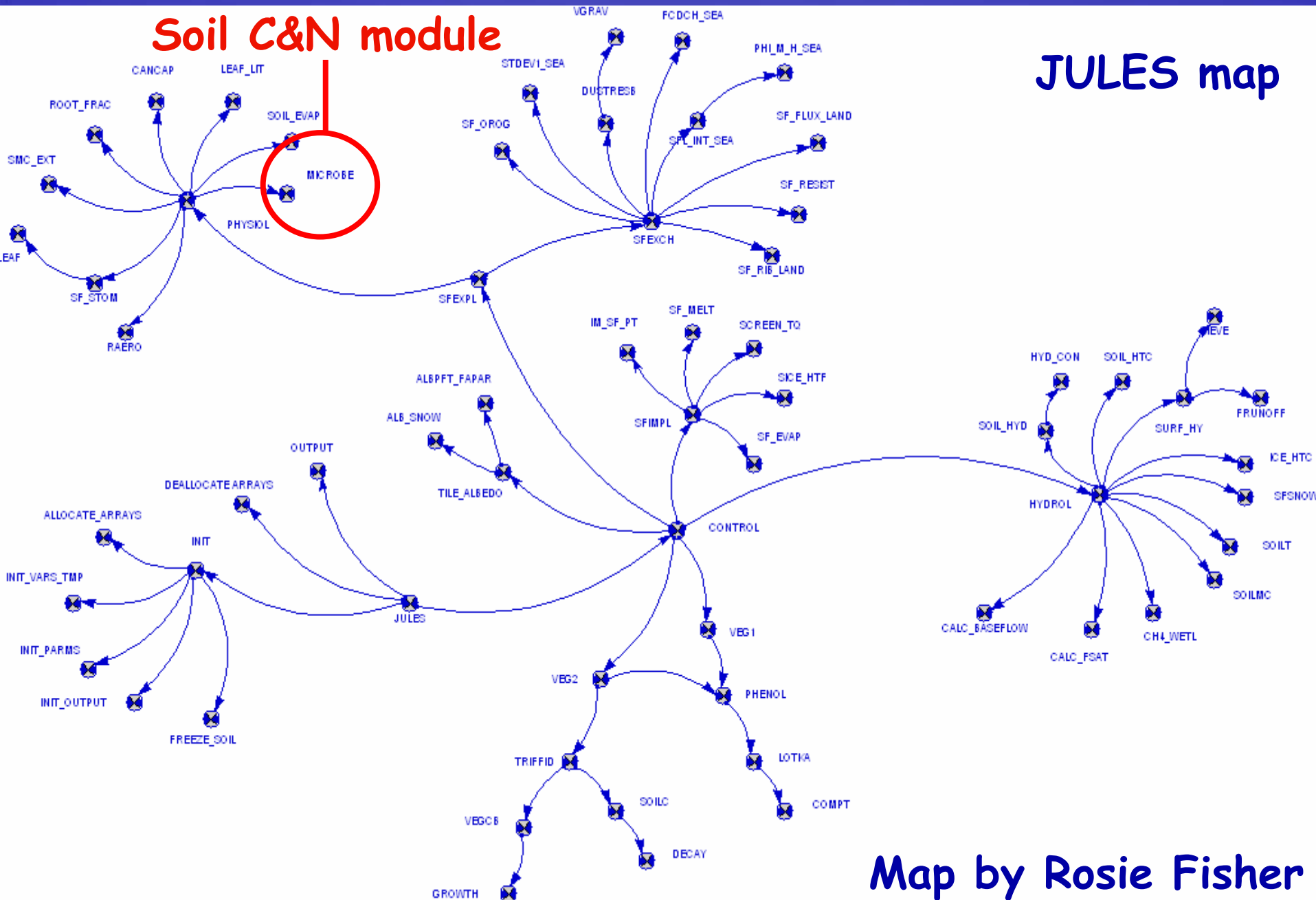
Soil C & N Module

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Soil C&N module

JULES map

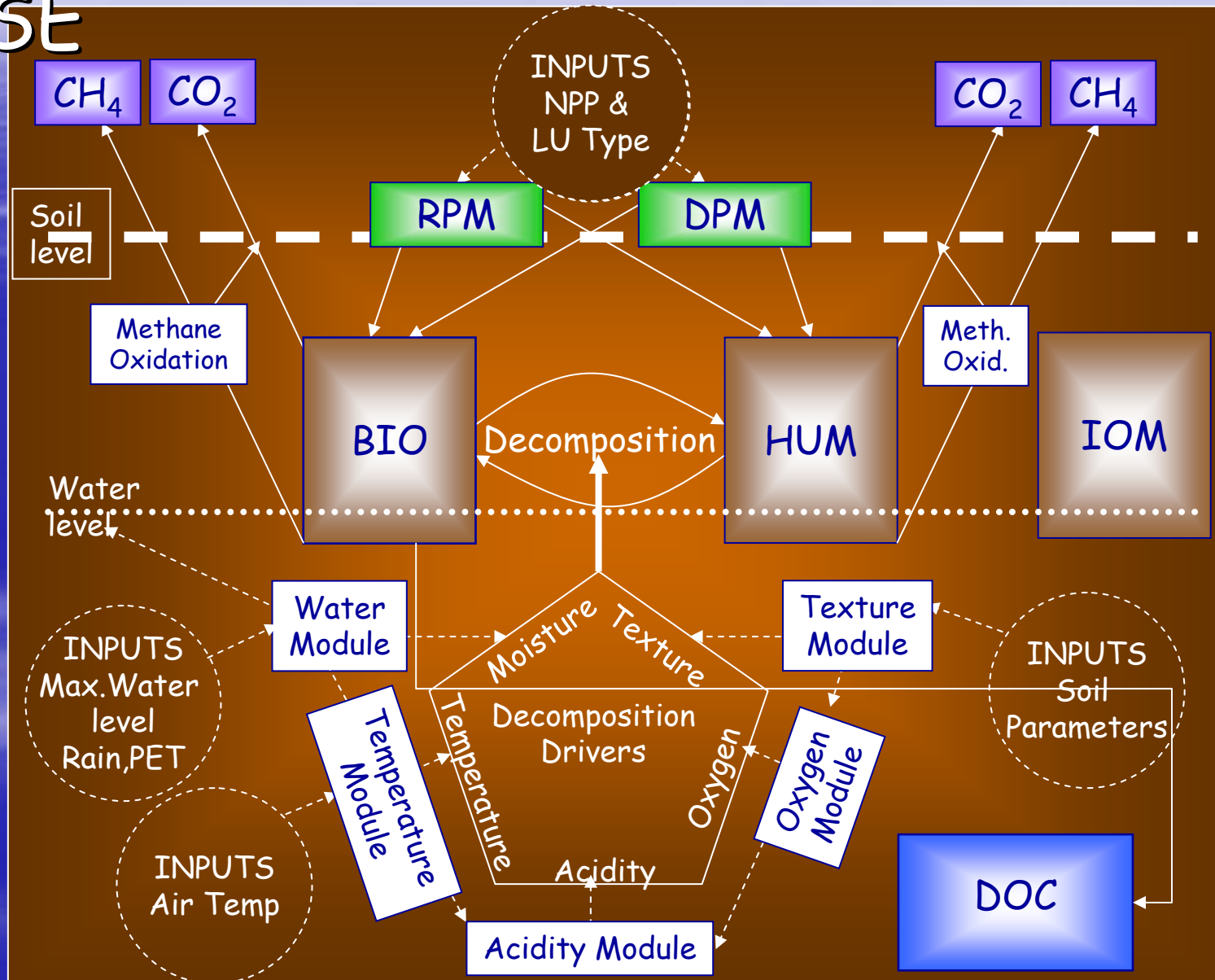


Map by Rosie Fisher

Soil C and N model for all land use

- ECOSSE

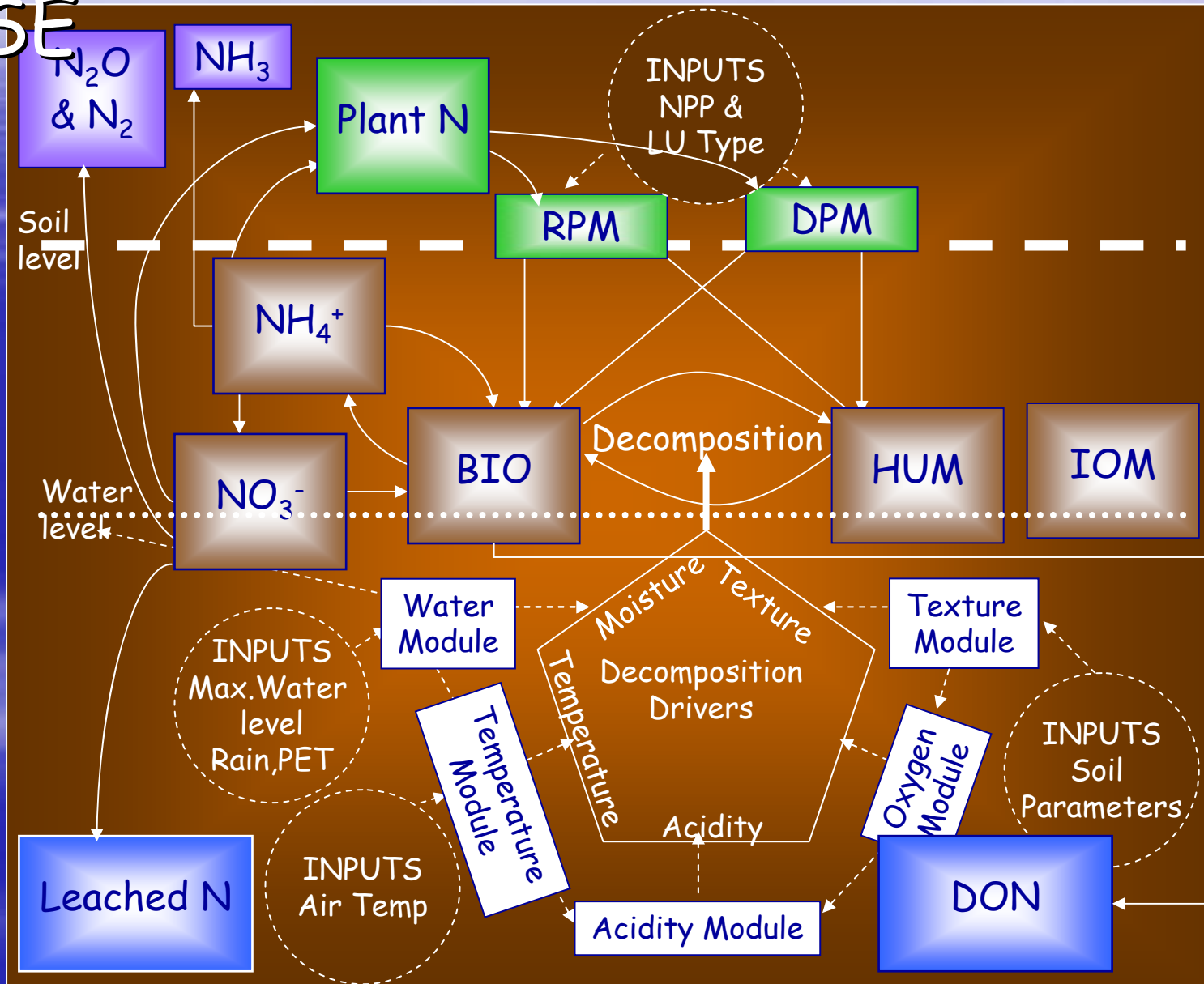
Carbon Component of ECOSSE



Soil C and N model for all land use

- ECOSSE

Nitrogen
Component
of ECOSSE



RothC CN for JULES

```
C-----  
GETEQOM_FROM_ROTHC --|  
1      |-- SETEQ  
1      |-- RUNTOEQ --|  
2      |      |-- CALC1  
2      |      |-- BPCALC  
2      |      |-- RATEF_LTA --|  
3      |      |      |-- MODFACTS_MINER  
2      |      |-- PCAR  
2      |      |-- SETMAT --|  
3      |      |      |-- UNITM  
3      |      |      |-- UNITM  
3      |      |      |-- MULT3  
2      |      |-- RUNCEQ  
1      |-- GETPI  
1      |-- RUNTOEQ --|  
2      |      |-- CALC1  
2      |      |-- BPCALC  
2      |      |-- RATEF_LTA --|  
3      |      |      |-- MODFACTS_MINER  
2      |      |-- PCAR  
2      |      |-- SETMAT --|  
3      |      |      |-- UNITM  
3      |      |      |-- UNITM  
3      |      |      |-- MULT3  
2      |      |-- RUNCEQ --|  
3      |      |      |-- YAAEQ  
3      |      |      |-- PCAR  
3      |      |      |-- POW10 --|  
4      |      |      |-- MULT1  
4      |      |      |-- MULT1  
4      |      |      |-- MULT1  
4      |      |      |-- MULT1
```

Sundial CN for JULES

```
C-----  
ADD_SUNDIAL_SOILCN --|  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD  
1          |-- ADDFERT  
1          |-- ADDFYM  
1          |-- ADDATM  
1          |-- PROPNI5  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD
```

```
C-----  
INIT_SUNDIAL_SOILCN_FIXED --|  
1          |-- GET_SUNDIAL_SOILPARS --|  
2          |          |-- SAVE_CN  
2          |          |-- PAR_CN  
2          |          |-- MAKE_PAR_CN  
2          |          |-- SAVE_CN  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD  
1          |-- SETTIME_CN  
1          |-- STARTORG  
1          |-- OMPROP --|  
2          |          |-- GETSTABLECN  
1          |-- SOILFIX  
1          |-- GET_CTON_BRADBURY  
1          |-- SETORGM_FIXED  
1          |-- SETDOC  
1          |-- SETFERT  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD
```

```
C-----  
MICROBIAL_SUNDIAL_SOILCN --|  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD  
1          |-- MINER1_FOEREID --|  
2          |          |-- MODFACTS_MINER  
1          |-- MINER1_BRADBURY --|  
2          |          |-- MODFACTS_MINER  
1          |-- EMIT_METHANE --|  
2          |          |-- MODFACTS_ANDEC  
1          |-- BYPASSFLOW --|  
2          |          |-- PROPNI5  
1          |-- PROPNI5  
1          |-- NITRIF_NEMIS --|  
2          |          |-- MODFACTS_NITRIF  
2          |          |-- MODFACTS_NITRIF  
1          |-- NITRIF_BRADBURY --|  
2          |          |-- MODFACTS_NITRIF  
2          |          |-- MODFACTS_NITRIF  
1          |-- PROPNI5  
1          |-- DENITRIF3_NEMIS  
1          |-- DENITRIF3_BRADBURY  
1          |-- MAKE_DOC --|  
2          |          |-- MODFACTS_MINER  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD
```

```
C-----  
PHYSICAL_SUNDIAL_SOILCN --|  
1          |-- SAVE_CN  
1          |-- LEACH_NITRATE  
1          |-- LEACH_DOC  
1          |-- PROPNI5  
1          |-- SAVE_CN  
C-----  
RESTART_SUNDIAL_SOILCN --|  
1          |-- GET_SUNDIAL_SOILPARS --|  
2          |          |-- SAVE_CN  
2          |          |-- PAR_CN  
2          |          |-- MAKE_PAR_CN  
2          |          |-- SAVE_CN  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD  
1          |-- SETTIME_CN  
1          |-- STARTORG  
1          |-- OMPROP --|  
2          |          |-- GETSTABLECN  
1          |-- SETDOC  
1          |-- SETFERT  
1          |-- SAVE_CN  
1          |-- SAVE_FERTADD  
C-----  
RUN_ROTHC_AND_N_TO_EQUILIBRIUM --|  
1          |-- SAVE_CN  
1          |-- GET_CTON_BRADBURY  
1          |-- SETORGM_EQRUN --|  
2          |          |-- GETEQOM_FROM_ROTHC --|  
                |-- (see RothC code tree)  
1          |-- SETORGM_FIXED  
1          |-- SAVE_CN  
1          |-- DUMP_SOILCN --|  
2          |          |-- SAVE_CN  
2          |          |-- SAVE_CN
```

N uptake model
Josh
Christmas

Additional P mech^{ms}
Lancaster axis.
Post April

IMOGEN-JULES-TRIFFID - done...
IMOGEN-JULES-ECOSSE - done ...
IMOGEN-JULES-ED-ECOSSE - to be done..
Meeting in Sheffield
Chris, Mark, Jo, Kev, Rosie, Steve?

Soil C:N
ECOSSE - underway

IMOGEN-JULES-ECOSSE-TRIFFID-FUN
IMOGEN-JULES-ECOSSE- ED-FUN

Soil P effect on
Jmax (Jon)
Christmas

Litter C:N
(Soil_layer, Gridcell, PFT, Tissue)

Benchmarking
CCMAP - QUEST
JULES officer @ CEH +
Pierre F
CLAM - benchmarking

Read_soil
P map, N map
(Rothamsted, Jon)

Nitrogen
allocation
Josh
Post-April

SPITFIRE-ED
by April

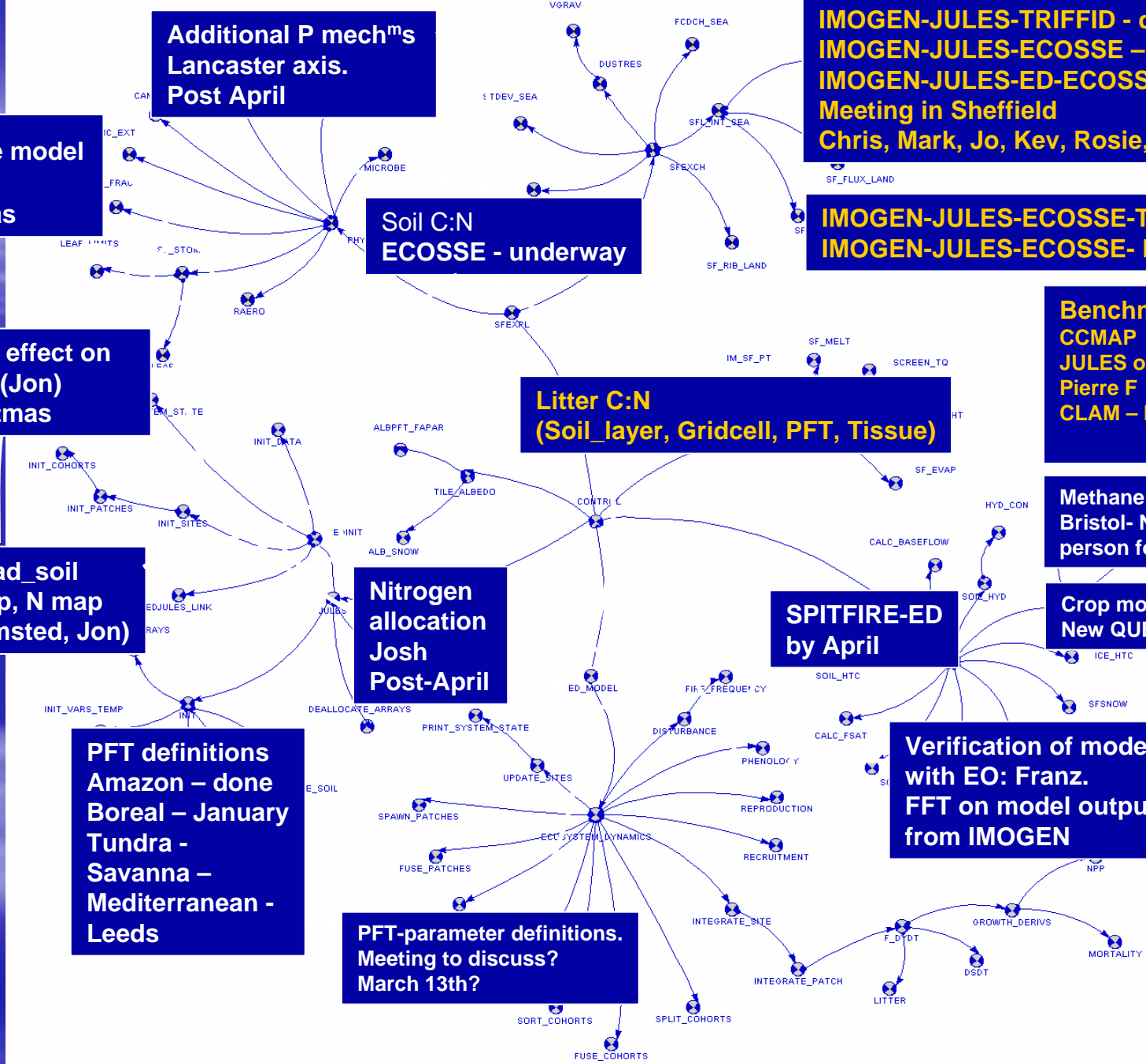
Methane model:
Bristol- Needs
person for JULES

Crop model
New QUEST money

PFT definitions
Amazon - done
Boreal - January
Tundra -
Savanna -
Mediterranean -
Leeds

PFT-parameter definitions.
Meeting to discuss?
March 13th?

Verification of model
with EO: Franz.
FFT on model output
from IMOGEN



Soil C & N component - status report and next steps

■ Current status

- Soil C & N component is complete and is coupled with JULES - now being tested

■ Next steps

- Documentation of soil C & N component. *Timeline: Preliminary text ready - final version expected April 2008.*
- Evaluation of the coupled version is currently underway (including ironing out some problems that have come to light during the evaluation). *Timeline: Expected completion date - 31/04/08*
- Evaluate the model, at least to replicate the runs for grid-points as in the Jones et al 2005 (Global Change Biology) paper and for previous version of JULES. The model will then be run in different ways. *Timeline: Expected completion date - 31/12/07. [still have to check against other changes made to JULES]*
- Couple the soil N component with the plant N component (with Steven Sitch / Josh Fisher). *Timeline: began in autumn 2007.*

Nitrogen - a key feedback

