**CEH Appraisal 2016-17**

**(Shaded boxes = FJP)**

**DO NOT ADD, DELETE OR ALTER THE TABLES IN THIS FORM**

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| **Name:** | Douglas Kelley | | | | | |
| **Section:** | Reynard | | | | | |
| **Version:** | 01/04/2016 – 31/03/2017 | | | | | |
| **Main appraiser:** | | | Rich Ellis | | | |
| **Countersigner:** | | | Douglas Clarke | | | |
| **Other appraiser(s) e.g. project leader (if any):** | | | | Eleanor Blyth ??Colin Jones?? | | |
| **Date created:** | | 24/08/16 | | | **Appraisal meeting date:** | 24/08/16 |

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| **Job Title**: | Land Surface Modeller | **Band:** | 6 |

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| **What is the key purpose of your role?** *(How does my work contribute? What is the aim of my role)* |
| Understand & quantify land surface feedbacks within the Earth System |

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| **What resources are available to you?** *(e.g. equipment, budget, line & project managed staff)* |
| HPC access |

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| **Please list the main duties of your role** *(These are your key responsibilities. Your core duties are pre-entered)* |
| 1. To meet NERC core expectations as appropriate to my role, particularly:    * play a full part in the effective operation of the appraisal system    * meet the health & safety responsibilities of my role (ref CEH H&S Policy Statement)    * maintain & develop my knowledge & skills    * manage my team in accordance with the expectations in the CEH manager's framework and checklist.    * work respectfully and positively with colleagues, customers and stakeholders |
| * Running and analysis of the performance of the land surface model (JULES) within the UK Earth System Model (UKESM). * Liaise with modellers at the Met Office in Exeter to ensure any new model-code works within the larger framework of the Unified Model. * ??Ensuring different model configurations work on a range of spatial and temporal grids.?? * Work with the team at CEH to trial and evaluate new model developments. * Model evaluation and analysis/ * Applying UKESM to answer stuff * Paper writing and presentation of results at international scientific meetings |

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**Objectives**

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| *A maximum of 6 SMART Objectives is recommended but extra objects can be added, if required.*  *Objectives are the targets you set to meet your duties (responsibilities). They should be SMART=****S****pecific,* ***M****easurable,* ***A****chievable,* ***R****elevant,* ***T****imebound.*  *First 7 boxes (shaded area above the dark line) for each Objective to be completed for forward job planning (FJP).*  *Final 4 boxes (not shaded & below the dark line) for each Objective to be completed when your performance is being assessed. This can be at any stage during the year but all will need to be completed for the end of year appraisal by you (the appraisee), by the main appraiser (your line manager) and, if required, by other appraisers (e.g. project manager).* |

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| **SMART Objective 1 name** | | | |
| **Provide Development support for modelling land surface processes in the UKESM** | | | |
| **Details** | | | |
| Version 1 of UKESM is due for completion, so the first stage for development support is to work with the UKEMS core team to assess and fix outstanding issues with the coupling of the land surface component. This includes:   * Assessing the stability of vegetation respiration when switching between dynamic and prescribed vegetation. * Checking re-distribution and response time of PFT growth when switching between 8 and 13 tiles. * Any other outstanding issues that become apparent to the core team   Once this has been completed, I will be providing support for CMIP6 (and associated MIP) simulations:   * AMIP runs * Others?   I will then be contributing to the development of UKEMS version 2. Exact areas for development will depend largely on the needs of the core team, outstanding development areas from version 1, and model evaluation (see objective 2), but may well include:   * Fire-atmosphere coupling (e.g., GHG/aerosols/VOC emissions and albedo -see objective 3) * Vegetation establishment time. | | | |
| **Target date:** | UKESMv1 (xxx)  Continual development thereafter | **% Time** : | **25** |
| **Project leader (optional)** : |  | | |
| **Success criteria (optional):** | Successful implementation of UKESM version 1  Initial plan for the next stage of development (early 2017) | | |
| **Next review date (optional):** |  | | |
| **Date achieved:** |  | | |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **SMART Objective 2 name** | | | |
| **Assessment of land surface processes and their impacts on the performance of the UKESM** | | | |
| **Details** | | | |
| UKESM will need an assessment protocol to evaluate model performance against observations. This will help justify model use, quantify uncertainties when applying the model (see Objective 3) and help target development for UKESM2 (objective 1).  Evaluation system will probably combine iLAMB, the land-surface benchmarking system, and ESMValTool, an evaluation tool for Earth System Models, to assess land surface and land-atmosphere feedbacks within the ESM. There is the possibility of combining these systems with observations from the Obs4MIPS project, and site based observations from e.g. fluxnet.  The protocol will prioritise datasets that (a) are closely linked to a model process (b) contain more “real information” (i.e. minimal model input). e.g. albedo, LST (suitably analysed to relate to processes.  Process evaluation of land-surface processes will initially involve assessment of “land-only” runs (i.e offline Jules) to control for uncertainty associated with other components of UKESM. It may also involve decoupling individual JULES components. This will allow also allow us to perform computational less expensive runs that will allow for extra output and examination of parameter space etc. This will also help attribute errors in model performance when evaluating coupled runs. | | | |
| **Target date:** |  | **% Time** : | **25** |
| **Project leader (optional)** : |  | | |
| **Success criteria (optional):** | **Design of Evaslutation system**  **Collection of datasets**  **????** | | |
| **Next review date (optional):** |  | | |
| **Date achieved:** |  | | |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **SMART Objective 3 name** | | | |
| **Fire in the Earth System Model** | | | |
| **Details** | | | |
| Fire has a number of feedback in the Earth System. GHS and aerosols emissions, and changes in surface albedo, directly affect radiative forcing, whilst vegetation responses to fire also affect the ability of the land surface re-absorb lost carbon, and impact on heat and water fluxes. In many parts of the world, a better understanding of potential changes to fire regimes is essential at assessing localised impact of climate change on ecosystem composition, services and human health. Diagnostic fire has been included in JULES, but is missing many key anthropogenic effects on fire, does not include vegetation impacts and has not been couple to the UKESM.  **Using LimFIRE to paramertise anthropgenic supression and vegetation mortality**  I have already began work on a simple framework which uses remote sensed observations to assess natural and anthropogenic controls on fire (LimFIRE) which will be expanded to aid development of fire impacts within JULES and parametrization of feedbacks fir UKESM. Further work on LimFIRE is likely to include collaborators within CEH, with UKESM science team members and other external collaborators:   |  |  |  | | --- | --- | --- | | **Task** | **Use in UKESM** | **Collaborators** | | Complete burnt area in LimFIRE | Process evaluation of fire simulation in JULES | LimFIRE co-authors (from met-office, GFED observations team, fireMIP etc) | | Incorporation of other relevant aspects of fire regime (intensity, return rates and residence times) into LimFIRE | Paramterization of vegetation mortality and associated carbon fluxes |  | | Assess the impact of land use | Incorporation of anthroagenic fire suppression in JULES and its associated feedbacks in UKESM |  |   **Fire in UKESM**  As fire emission are already incorporated in JULES, coupling to the atmosphere can already start? | | | |
| **Target date:** | LimFIRE burnt area completed by early 2017. | **% Time** : | **15** |
| **Project leader (optional)** : |  | | |
| **Success criteria (optional):** | **Submission for publication.** | | |
| **Next review date (optional):** |  | | |
| **Date achieved:** |  | | |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **SMART Objective 4 name** | | | |
| **Applying UKESM to …??Science Questions??** | | | |
| **Details** | | | |
| Using full model, land only, land-atmosphere, or CMIP6 ensembles.  Some ideas:   * Amazon Tipping points (Chantelle Burton/Gerd Folberth. Possibly post-fire and UKESM2) * Emergent constraints (Terrestrial UKESM group) * Analysis of extremes ( Terrestrial UKESM group) * State-space trajectories (Toby) * Land surface measures of non-land surface properties (Flood risk, air quality, Mosquito spread)   Emergent constraints were thought to be an exciting possibility, but no detailed discussion.  In separate discussions there was mention of analysis of extremes. | | | |
| **Target date:** |  | **% Time** : | **25** |
| **Project leader (optional)** : |  | | |
| **Success criteria (optional):** | **A list of UKESM science applications, and UKESM team members/outside collaborates set to work on them.** | | |
| **Next review date (optional):** |  | | |
| **Date achieved:** |  | | |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **SMART Objective 5 name** | | | |
| **Maintain external collaborations and complete outstanding projects** | | | |
| **Details** | | | |
| There are external collaborations on continuing projects, some of which would provide useful to the group.   * **Phendulum:** A first principles model of describing grassland phenology. At the moment, this is designed for drought-driven phenology, but plans are to include light and temperature driven phenelogical signals to be used to aid diagnosing changes in grassland production at <<UK sites>> * **Impact of future changes in ET on Hydrology:** A project exploring the potential impact of CO2 fertilization on ET-driven changes in runoff for agricultural areas of Australia. This is almost complete with a a paper in review. * **Modelling Australian Fire regimes:** Exploring drivers of potential changes in Australian fire regimes over the 21st century. This is almost complete with a a paper in review. * **FireMIP benchmarking:** I am performing benchmarking for 9 fire-vegetetion models as parrt of the fireMIP project. Involement in this project may prove useful for work on UKESM model evaluation (obective 2) and fire development (objective 3) | | | |
| **Target date:** | See “success criteria” | **% Time** : | **10** |
| **Project leader (optional)** : |  | | |
| **Success criteria (optional):** | Phendulum   * Initial paper submitted (Dec 2016) * Model incorporating other drivers (May 2017)   ET and fire: Publication of papers for each (Dec 2016)  FireMIP:   * Completed Benchmark comparisons (initial for fireMIP meeting 20th September; Completed benchmarking Jan 2017) * Model inter-comparison paper: Sep 2017. | | |
| **Next review date (optional):** |  | | |
| **Date achieved:** |  | | |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **SMART Objective 6 name** | | | |
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| **Details** | | | |
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| **Target date:** |  | **% Time** : |  |
| **Project leader (optional)** : |  | | |
| **Success criteria (optional):** |  | | |
| **Next review date (optional):** |  | | |
| **Date achieved:** |  | | |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| *Include at least one Development Objective - add extra Development Objectives if required.*  *First 4 boxes (shaded area above the dark line) for each Development Objective to be completed for forward job planning (FJP).*  *Final 3 boxes (not shaded & below the dark line) for each Development Objective to be completed when your performance is being assessed. This can be at any stage during the year but all will need to be completed for the end of year appraisal by you (the appraisee), by the appraiser (your line manager) and, if required, by other appraisers (e.g. project manager)* |

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| **Development Objective 1:** | | **Project Management Skills** | |
| **Activity:** | Project Managment training?  Making Meetings Work – 06/10/2016 | | |
| **How will this support a project, team or CEH objective?** | | | |
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| **Activity to be completed by (date):** | | |  |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **Development Objective 2:** | |  | |
| **Activity:** |  | | |
| **How will this support a project, team or CEH objective?** | | | |
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| **Activity to be completed by (date):** | | |  |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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| **Development Objective 3:** | |  | |
| **Activity:** | **Rose Training**  **IRIS courses** | | |
| **How will this support a project, team or CEH objective?** | | | |
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| **Activity to be completed by (date):** | | |  |
| **Self-assessment** | | | |
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| **Main appraiser assessment** *Completed by main appraiser* | | | |
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| **Other appraiser assessment (optional)** *Completed by other appraiser or their comments inserted by main appraiser* | | | |
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**Self-assessment to be completed before appraisal meeting (bullet points)**

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| *This is your opportunity to note down what you want to talk to your manager about in your appraisal meeting.* |

**What were your main achievements and outputs during the appraisal period?**

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**Overall self-assessment: particular challenges for you during the year, successes & learning points**

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**Please note any headings of any issues or learning and development needs you wish to discuss in the appraisal meeting**

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**Review of personal and role details**

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| *Please note when you reviewed and updated each of the following:* | | |
| **Intranet page reviewed and updated** | **Date:** |  |
| **Intranet CV reviewed and updated** | **Date:** |  |
| **Staff web page reviewed and updated (if you have one)** | **Date:** |  |
| **SSC details reviewed and updated** | **Date:** |  |

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| *When you have completed the following:*   1. *self-assessment on each individual* **Objective** *&* **Development Objective** 2. **Self-assessment** *bullet points* 3. **Review of personal and role details**   *Send your appraisal form to your main appraiser prior to your appraisal meeting.* |

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**Overall appraisal**

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| **Main Appraiser assessment**  *Appraiser to insert overall comments here AFTER the appraisal meeting. They should also have completed assessment of each individual Objective & Development Objective & inserted comments from other appraiser(s) if necessary. Then send to the countersigner and copy to the appraisee* | |
|  | |
| **Date:** | |
| **Countersigner assessment**  *Countersigner to insert overall comments here, then send to the appraisee and copy to their main appraiser* | |
|  | |
| **Date:** | |
| **Appraisee confirmation of receipt** *Insert date, save as ‘Surname First Name Appraisal 16/17’ (e.g. Brown Tom Appraisal 16/17) then email to ‘*CEHAppraisals‘ *– if* *adding final comments please copy the appraisal by email to your main appraiser too.* | **Date:** |
| **Final comments (optional)** | |
|  | |