TAIPAN field tiling

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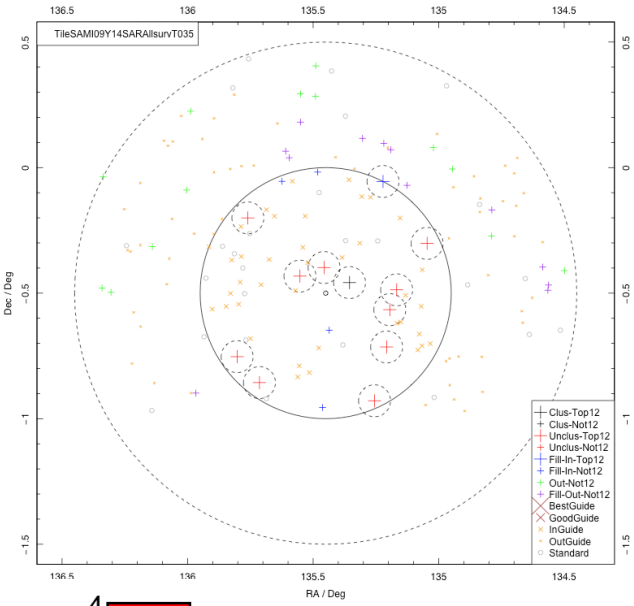
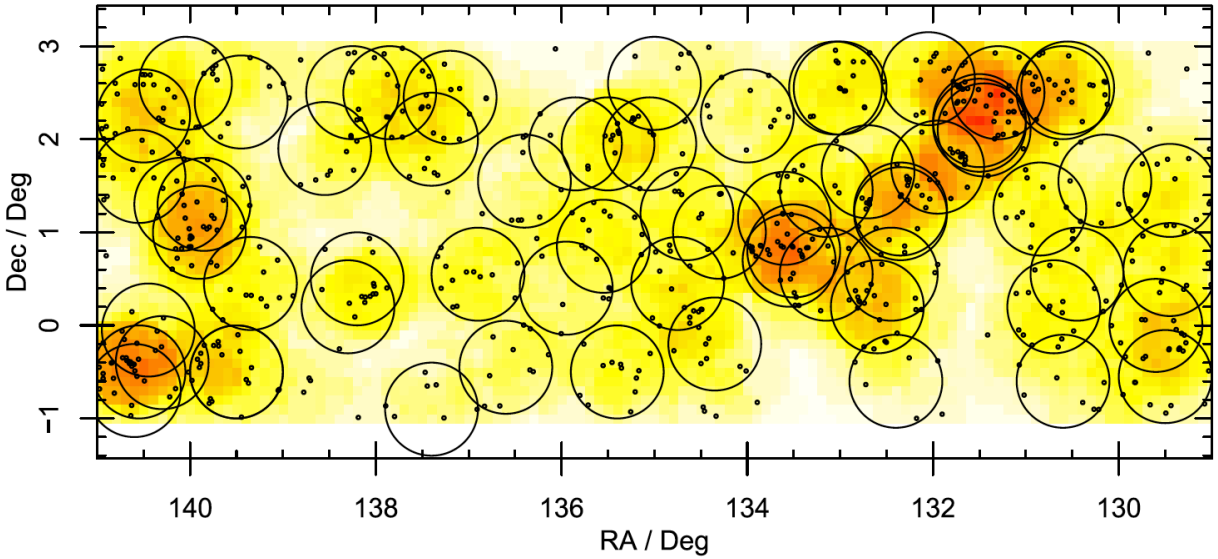
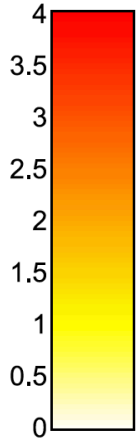
TAIPAN tiling

How it works:

- Based on *greedy* and *dengreedy* algorithm by Aaron Robotham.
- Tiles created based on highest density of top priority targets.
- For multipass, tiles can then be prioritized based on sub-selection.







Example from SAMI

TAIPAN tiling – what I need

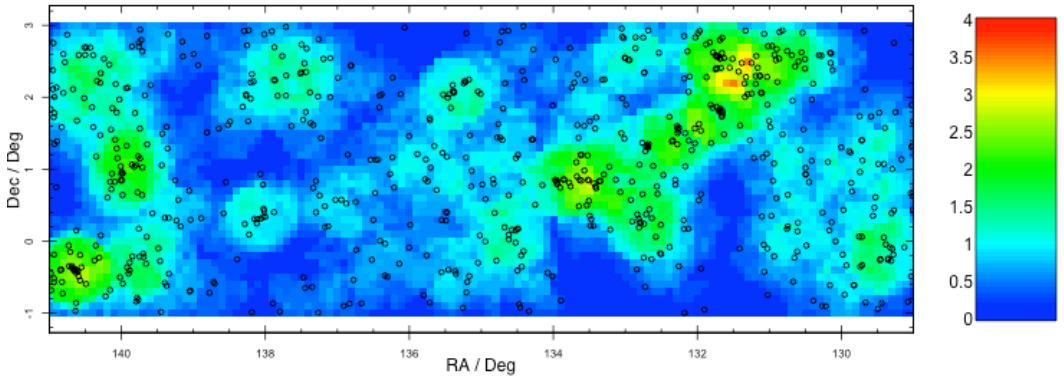
- Catalogue that includes
  - a unique source identifier,
  - RA & Dec positions,
  - any key science selection values (eg: mag, colour),
  - priorities (eg: primary targets = 8 (arbitrary) , fillers= 3; scale 0-8 allows for subcategories; set to 0 when observed.). E.g: For science cases A, B, and C where A is most important:
    - 8 = top priority Case A targets
    - 4 = Case A filler targets
    - 5 = top priority Case B targets
    - 3 = top priority Case C targets if Case C is unimportant in the first pass of the survey
    - 1=filler targets for Case B and C

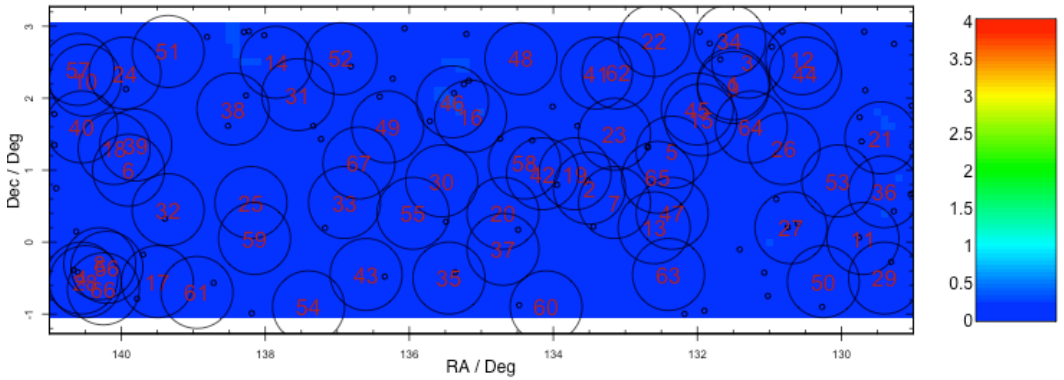
    Actual values depend critically on how important the Case A, B and C science cases and if it will change throughout the survey (eg: aim to complete Case A as fast as possible and complete B in next pass?). Many variations on this.....we need to make some decisions.
- Standards catalogue for each field?
- Technical constraints
  - Collision radius and placement restrictions on bugs
  - Any other field limitations.

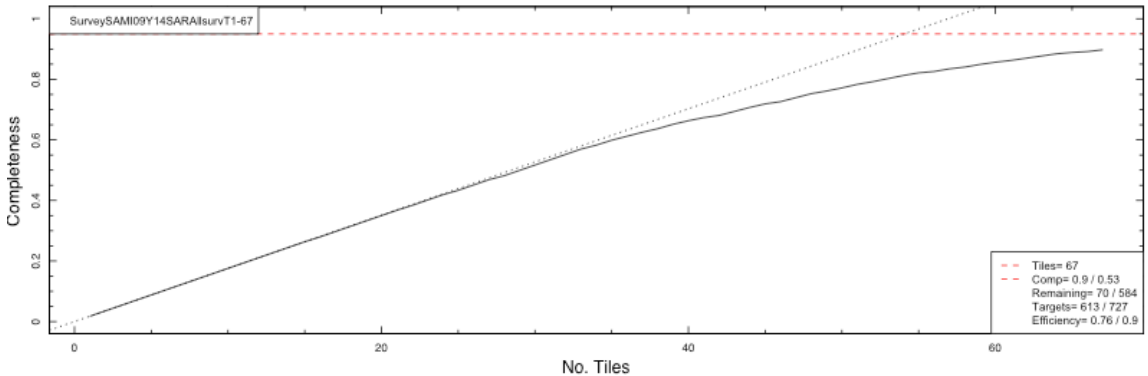
TAIPAN tiling – what I can produce

- Simulations of best way of reaching the desired completeness given the priorities of the survey (which must be determined first).
- Final tiles for the survey either:
  - All tiled before survey starts, or
  - Iterative tiling during progress of survey.

- Airmass plots accompany tiles. Select tiles for given airmass.







TAIPAN tiling – discussion points

1. Will the survey proceed in DEC strips?
2. Will catalogues of the whole area be available upfront to do full tiling ahead, or will cats be incrementally released during survey?
3. Are the several science cases going to be tiled simultaneously or priority given to complete a case first with filler targets on other cases?
4. What are the primary and secondary priorities: primary set in catalogue *for each science case*, secondary changes observed tiles. All tiles in one RA region can be prioritised for observing order based on weight of targets from each science case OR early gains to get particular object types OR any other criteria. Or no secondary priority need be set, just tile to get most primary objects in most efficient way.
5. Completeness targets for each science case: e.g. 90% complete in primary targets in each science case by the end of 5 years, OR early gains by maximising completeness of a particular subsample?