The grid command – Hazy1 Chap 18

- Computes a grid of models in parallel on multi-core machines
- Include "vary" keyword on commands with variable parameters (Chapter 17.4)
- "grid" command specifies lower, upper bounds, and step size
  - Radius 13 vary
  - grid 13 23 2

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Special rules for temperature grids

18.3 Grid start point, end point, increment [linear]

Parameters for those commands with the **vary** keyword (see Table 17.1 on page 239) can be varied within a grid. Each command with a **vary** option must be followed by a **grid** command.

For nearly all commands, the quantity will be varied logarithmically (current exceptions are the **illuminate**, **ratio alphox**, **dlaw**, and **fudge** commands). If the quantity is varied logarithmically, the lower / upper limit and the step size also need to be given as logarithms, as shown above. If the keyword **linear** is included on the **grid** command, then these numbers will be interpreted as linear quantities. As an example, the following will produce a grid of models with a constant electron temperature of 5000, 10000, 15000, and 20000 K.

```
constant temperature 4 vary
grid range from 5000 to 20000 step 5000 linear
```

18.3 Beware the grid command treatment of temperatures!!

The following will crash with an fpe

```
constant temperature 4 vary
grid range from 5000 to 20000 step 5000  // wrong, this will crash!
```

This is because of the rule stated above that the **grid** command treats temperature ranges as logs unless the keyword **linear** occurs.

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"Save grid" with grids

- "Save grid" command saves step parameters
  - Summary of error conditions
- Summary of any problems

#Index	Failure?	Warnings?	Exit code	#rank	#seq	RADIUS= %	grid parame
000000000	T	F	early termination	1	0	10.000000	10.000000
000000001	T	F	early termination	2	0	11.000000	11.000000
000000002	F	T	warnings	3	0	12.000000	12.000000
000000003	F	T	warnings	0	0	13.000000	13.000000

#Index	Failure?	Warnings?	Exit code	#rank	#seq	IONIZATIO	grid parame
000000000	F	F	ok	0	0	-4.000000	-4.000000
000000001	F	F	ok	3	0	-3.000000	-3.000000
000000002	F	F	ok	2	0	-2.000000	-2.000000
000000003	F	F	ok	1	0	-1.000000	-1.000000

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Options on save files with grids

- **“no hash”, “last”, options on other save commands**

```
save line list ratio ".lin" "LineListBPT.dat" last no hash
save grid ".grd" last no hash
~
```

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