## THE EVOLUTIONS OF CLOUDY

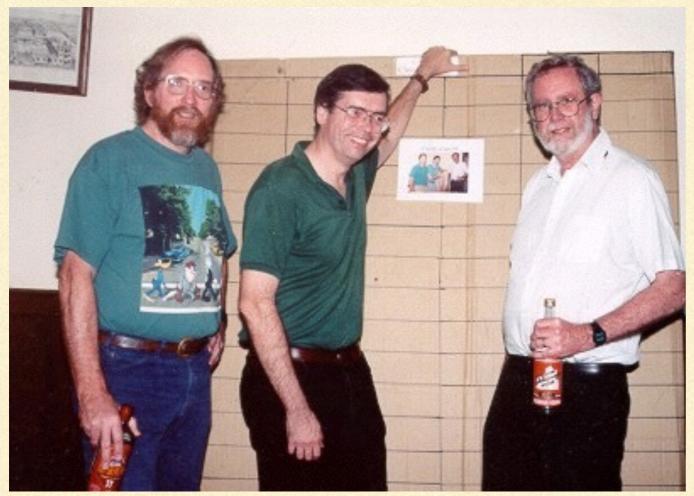
Christophe Morisset Instituto de Astronomía, UNAM, México

# From left to right, Jack Baldwin, Peter Martin, and Gary Ferland, the occupants of room 5 in the Institute of Astronomy's Hoyle Building in mid 1978.

#### CLOUDY AT 10



In late summer of 1988. From left to right, Hagai Netzer (the father of Cloudy's old friend ION), Gary Ferland, Cloudy, and Jack Baldwin.

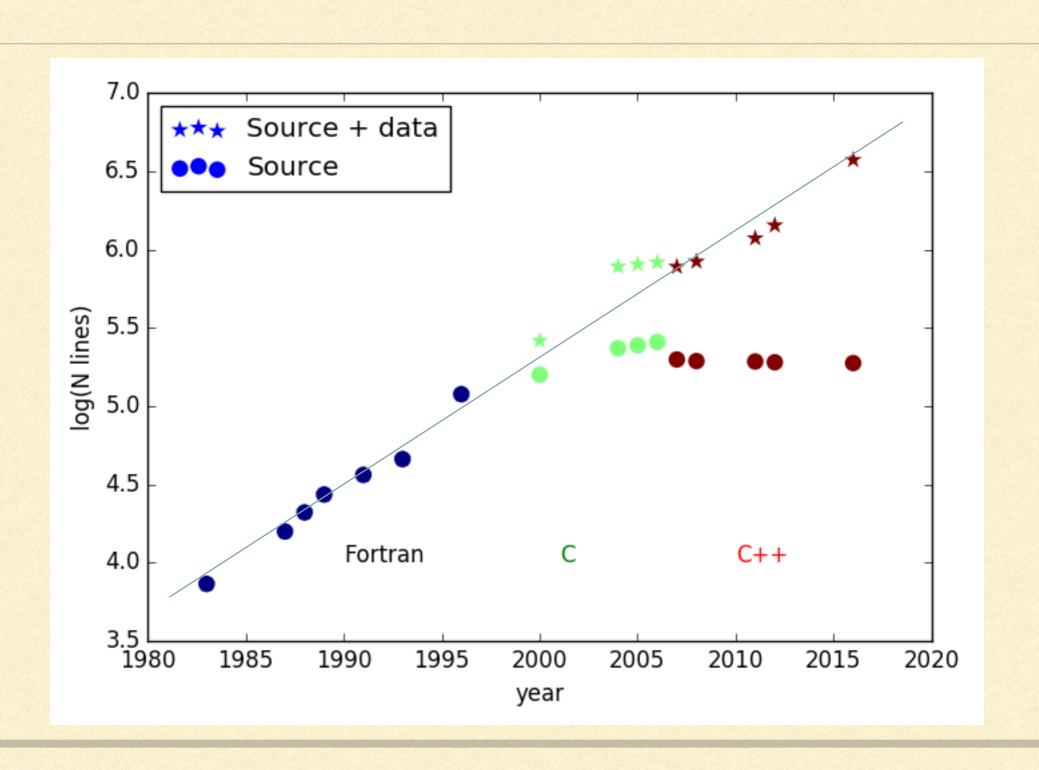




### CLOUDY AT 21

Tom Troland, Gary Ferland, and Jack Baldwin in front of a simulation of Cloudy.

#### SIZE EVOLUTION

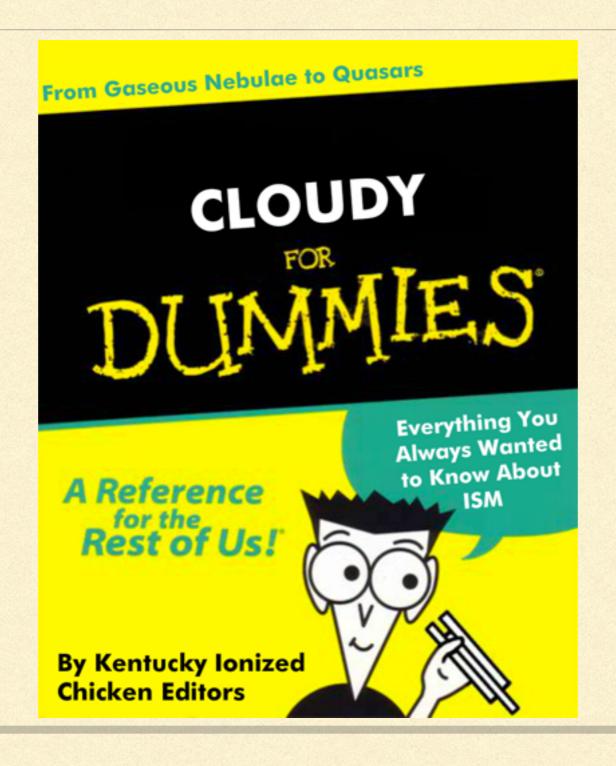


#### NOW CLOUDY IS 38

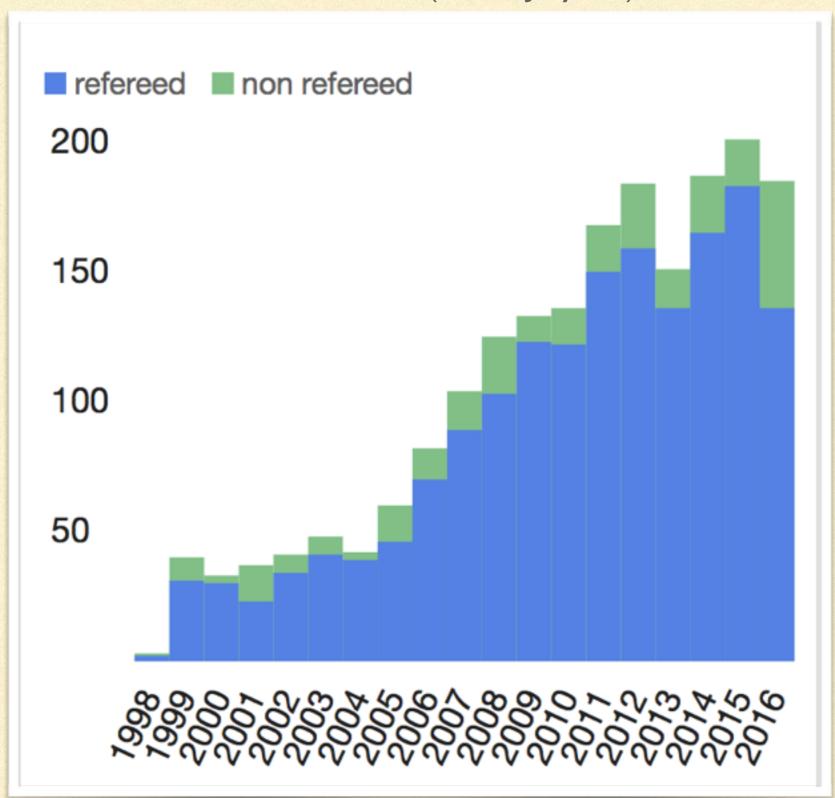
- **200,000** lines of code
- **3,500,000** lines of data
- Would be 1850 boxes of 2,000 punched cards each!



#### CLOUDY REVOLUTIONS



citations(2013RMxAA..49..137F) OR citations(1998PASP..110..761F) 1960 citations (2016, July 27)



#### ABSTRACT: « CLOUDY »

Concept Cloud: terms frequently found in the abstract of papers

```
spectra simulations
mass abundances optical lambda1397

Models II cloudygas UV properties
absorption present CLOUDYngc study
ratios
radiation data Observed find lines IV
ionization range dust lines calculations
photoionization stellar density star
derive results emission code
                         detected temperature region iii high parameters metallicity
                                                           source nebula physical
                                                                                                   different
```