THE NRC 'WOMEN IN SCIENCE AND ENGINEERING' (WISE) PROGRAM

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1. INTRODUCTION

In 1990/91, the National Research Council of Canada initiated a new training program for undergraduate women at Canadian universities. The program, jointly announced by the (federal) Minister for the Status of Women and by the President of the NRC, is designed to encourage women to further their studies in science and engineering. WISE was inaugurated as part of NRC's 75th anniversary activities. The program has now completed one full year of successful operation.

The NRC has 16 Institutes covering most areas of modern science and engineering, including, for example, biotechnology, marine dynamics, engineering (including aerospace), physical sciences (including astrophysics), standards and information technology. Laboratories are located from Halifax to Victoria. Students may work in laboratories closely related to their career goals and/or explore different areas by moving among laboratories.

2. PROGRAM DESCRIPTION

Women apply through their universities; each university may submit up to five applications per year; students are chosen based upon their academic record, interest in pursuing a career in science and technology, and letters of recommendation.

Applications are made at the end of the first year of studies.

Chosen candidates (about 25 per year) participate for three years (subject to maintaining high grades and a commitment to a science degree).

Each student has an interested NRC researcher acting as her mentor.

Students become year-round NRC employees; they work in NRC laboratories during the summer or during co-op work terms.

The initial salary is incremented by C$2,000 and C$3,000 between the second and third year, and between third and fourth year, of university, respectively. The initial salary level is set so that the student may pay her university expenses from it.

3. DAO INVOLVEMENT

In the first year, two students, both of whom mentioned general interest in astronomy in their applications but whose career goals are in bio-technology instrumentation development and spacecraft engineering, respectively, were chosen to work with mentors at the Dominion Astrophysical Observatory.

Both worked briefly on astronomy-related data reduction, in order to give them some feel for the *raison d'être* of the Observatory; one paper, co-authored with DAO astronomers, has been accepted by the PASP.

One student successfully worked on optical design for the Fine Error Sensor of the Lyman/FUSE spacecraft (part of the Canadian contribution to that international mission) and on neural network techniques applied to telescope guiding; a paper on the latter has been written *by the student* for submission to a refereed journal.

With equal success, the other student, in her first work term developed colour reconstruction software for CCD images. Her images from CCD frames taken with the new imager on our 1.8-m telescope are now shown in our regular visitor programs. She then measured deviations from linearity of a PtSc infrared detector and wrote software to correct for them, as well as to apply a dual-correlation noise reduction technique to the IR imager data.

While neither of our students specifically wants to pursue astronomy as a career, both clearly extracted an enormous amount from their initial opportunities to work with diverse forefront techniques common at active national astronomical facilities; such techniques have value and application far afield from astronomy.

4. THE FUTURE

WISE represents a serious attempt (begun during a time of considerable fiscal restraint) to make greater use of a unique set of national laboratories to provide early career experiences aimed at encouraging young women to follow through on their interests in a career in science and engineering. The WISE program clearly is not a panacea for a problem of enormous dimensions and complexity in our society. At some level it must be considered an experiment whose successes and shortcomings will be monitored closely, with an eye towards further tuning, as appropriate. The mentors, students and Institute Directors General are asked for feedback regularly. As the quality of women WISE has attracted is truly 'awesome,' chances for long-term success measured by positive impact seem very high.

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