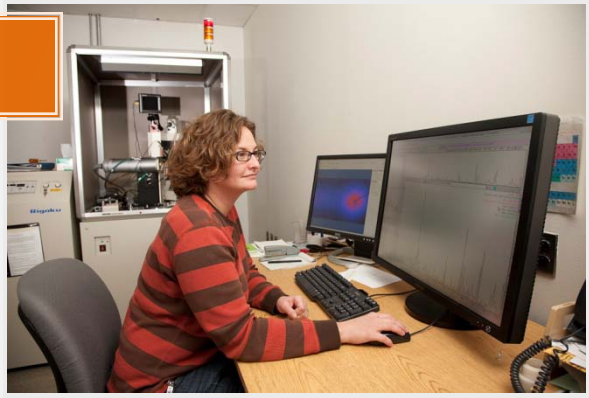
Smithsonian
Museum Conservation Institute

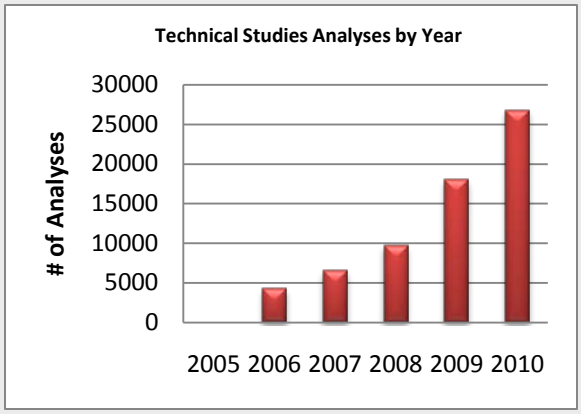
MCI **Weekly Highlight 15** October 2010

All Grand Challenges

The Smithsonian's Museum Conservation Institute (MCI) is the center for specialized technical collection research and conservation for all Smithsonian museums and collections. MCI's Technical Studies Group – **Roland Cunningham, Christine France, Jennifer Giaccai, and Nicole Little** – headed by **Jeff Speakman**, conducts scientific analyses for museums, research centers, and offices across the Smithsonian. The Technical Studies Group, along with MCI's Applied Research Scientists and Conservators, combines knowledge of materials and the history of technology with state-of-the-art instrumentation and scientific techniques to provide technical research studies and interpretation of artistic, anthropological, biological, and historical objects. These services are available to Smithsonian units at no charge, with priority to projects that further the strategic goals of the Smithsonian and support the four Grand Challenges.



Above: Nicole Little, Physical Scientist, conducts analysis on the Micro-X-Ray Diffraction Spectrometer.
Below: Comparison of the number of scientific analyses over the past five years.



- In FY2010 the Technical Studies Group conducted more than **26,800** analyses (13,900 of these analyses were IRMS-based) in over 92 active projects (51 IRMS-based), completed more than 28 projects, and initiated more than 26 new projects in support of Smithsonian Research and **all four of the Grand Challenges**. The number of analyses represents an all-time record for the Technical Studies Group and continues a 5-year trend of increasing numbers of analyses (see figure).
- The Stable Isotope Laboratory conducted 13,900 analyses for 51 active/ongoing projects. This includes 40 projects in **Understanding and Sustaining a Biodiverse Planet,** 5 projects in **Unlocking the Mysteries of the Universe,** 3 projects in **Understanding the American Experience,** and 3 projects in **Valuing World Cultures.**
- Supported research from a wider customer base than in previous years – 10 museums, NZP, and 6 research centers, including underserved units such as SAAM, NPG, **SMSFP**, **NZP**, **SERC**, and **STRI**, as well as new customers within museums and research centers.
- Supported the research of dozens of SI interns, fellows, and post-docs.
- Responded to analytical requests and consultations from non-SI agencies and museums including the National Park Service, US Immigration and Customs Enforcement (ICE), US Secret Service, Folger Shakespeare Library, Metropolitan Museum of Art, Walters Art Museum, and Getty Conservation Institute.
- Received a Smithsonian Secretary's Research Prize for Physical Scientist **Christine France**'s co-authored publication, Migratory Canada Geese Cause Crash of US Airways Flight 1549. *Frontiers in Ecology and the Environment* 7(2009): 297-301.
- Authored **12** published papers, gave **19** professional presentations, and submitted **10** manuscripts for publication.

Selected FY 2010 Publications with Smithsonian Fellows (*):

Fusco, Maria*, and **Robert J. Speakman** (2010). The Application of X-ray Fluorescence (XRF) Spectrometry in the Characterization of Glass Degradation in Beaded African Art. *Bead Forum* 52:1–12.

Gervais, Claire*, **Carol A. Grissom**, **Nicole C. Little**, and **Melvin J. Wachowiak** (2010). Cleaning Marble with Ammonium Citrate. *Studies in Conservation* 55:164–176.

Iñañez, Javier G.*, **Robert J. Speakman**, Jaume Buxeda i Garrigós, and Michael D. Glascock (2010). Chemical Characterization of Tin-Lead Glazed Ceramics from Aragon (Spain) by Neutron Activation Analysis. *Radiochimica Acta* 98(8):525–532.

Pohl, Christie M.*, Greg Hodgins, **Robert J. Speakman**, and **Harriet F. Beaubien** (2009). The Investigation of Cyclododecane's Effect on the Carbon-14 Dating of Archaeological Materials. *Journal of the American Institute for Conservation* 48:223–233.