POSTER PRESENTATION

DIATOM RESPONSE TO THE TSOYOWATA ASHFALL IN FALLEN LEAF LAKE, CALIFORNIA

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Changes in diatom diversity and abundance in response to an ancient volcanic ash-fall event at Fallen Leaf Lake, California in the Lake Tahoe Region is investigated for the first time. A sediment core containing the Tsoyowata ash (7950-7730 cal years BP) was sampled and relative abundances tabulated. An age model for the core based on a radiocarbon date and the ash layer indicates the sedimentation rate to be fairly high, averaging about 20 years per cm. The ash is 2cm thick and is overlain by a 1cm thick light gray layer at 291cm below the top. Examination of the post-ash succession above 291cm is complicated by a thin turbidite layer from 290-288cm, but no erosion is observed at the base of the turbidite. Overall, diatom assemblages throughout the core are dominated by centric diatoms with *Aulacoseira italica* being the most abundant. Cyclotelloid species are also locally abundant. Araphid pennates comprise between 10-35%, and raphid and monoraphid taxa comprise a much smaller portion, generally from 1-5%. Fluctuations in relative abundances are observed throughout the core, however the most dramatic change is in the post ash sample at 291 cm. This is the only sample where *A. italica* is not the most abundant species. *Discostella stelligera* has the highest abundance (25%) and exhibits a marked increase from pre-ash samples (2-7%). *Asterionella formosa* was next abundant (21%), also increased from pre-ash abundances (1-8%). *A. italica* was markedly lower (18%), with pre-ash samples ranging from 47-87%. *S. construens* v. *venter* is also elevated approximately 5% above pre-ash levels. *A. italica* increases in abundance to 35% at 287cm (~60 y post-ash) then to pre-ash levels of 66% at 283cm (~140y post-ash). *D. stelligera* and *A. formosa* drop back to pre-ash abundance levels, but *S. construens* v. *venter* remains elevated (14-28%). Marked changes observed in the layer directly above the ash indicate an immediate ecologic impact. Previous studies of Mexican lakes have shown increases in *Fragilaria* spp. accompanied by a decrease in the abundance of *Aulacoseira* immediately following tephra deposition. These shifts have previously been interpreted to indicate a shift in the Si:P ratio towards higher silica concentrations. Whether related to Si levels or other factors, the diatom transition at Fallen Leaf Lake shows an immediate and marked impact on the diatom flora followed by a significant drop in *A. italica* that lasts for a ~140 year period before return to pre-ash conditions.