Effects of pressure on $T_c$ in $(\text{Tl}_{0.59}\text{Cs}_{0.26})\text{Fe}_{1.9}\text{Se}_2$\(^1\) S.C. CHEN, K.J. SYU, H.H. SUNG, W.H. LEE, Department of Physics, National Chung Cheng University, C.C. LI, Y.Y. CHEN, Institute of Physics, Academia Sinica, W. H. LEE TEAM, Y. Y. CHEN TEAM — Hydrostatic-pressure (up to 0.96 GPa) dependence of $T_c$ in a newly discovered Fe-based superconductor $(\text{Tl}_{0.59}\text{Cs}_{0.26})\text{Fe}_{1.9}\text{Se}_2$ is reported. The room temperature powder x-ray diffraction and crystallographic data provide the evidence for bulk superconductivity with $T_c$ around 28 K in a tetragonal ThCr$_2$Si$_2$-type structure at ambient pressure. Static Magnetization measurements under pressure indicate that the linear increase in $T_c$ is initially rapid ($dT_c/dP = 9.9$ K GPa$^{-1}$) but slows down to $dT_c/dP = 2.5$ K GPa$^{-1}$ for $P > 0.18$ GPa. The $T_c$ of the superconducting phase is 32 K at pressure $P = 0.96$ GPa. The simple rigid band model may not be sufficient to account for the observations if the lattice parameters of the unit cell are linearly decreased with the hydrostatic pressure.