The Tunguska Basin in Siberia contains hundreds of kilometre-sized pipe structures, many of which containing economic ore deposits of the Angara-Ilim type. Tens of pipes have been extensively explored for iron ore deposits and two of them (Korshunovskoe and Rudnogorskoe) have been mined for decades. The origin of the pipes is debated. They consist of brecciated sediments and magmatic rocks, some with crater-shaped tops. We suggest the pipes were formed as a part of the Siberian Traps Large Igneous Province (LIP) when basaltic melt intruded into the Tunguska Basin about 251 million years ago. The structure and geometry of the Siberian pipes are similar to hydrothermal vent complexes present in volcanic basins elsewhere (e.g., the Voring and Karoo basins). However, only the Siberian pipes contain major ore deposits. The intruded Tunguska Basin contains both clastic and evaporite sequences, including Precambrian and Paleozoic oil source rocks, halite, limestone, and coal-bearing rocks. Our recent isotope dating, petrological and geochemical studies of the pipes confirm their temporary link with the Siberian LIP and their phreatomagmatic nature. The pipes originated from magma-brine interaction around thick (>50 m) sill intrusions by explosive release of gases from contact aureoles shortly (tens of years) after sill emplacement. The pipe architecture, morphology of ore bodies, and economic potential (Fe±Cu±P±Sr-Ba) strongly depends of the type of host rocks and its fluid saturation at emplacement time. Our results suggest that the Siberian Traps pipes originated from sills emplacement into brine-saturated host rocks belong to true IOCG (iron oxide-copper-gold) deposits.