



Team Thiem

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The name ‘Thiem’ is well known from the ‘Thiem Equation’, which predicts the hydraulic conductivity based on the discharge and drawdown of a well in a confined aquifer under steady state flow. In fact, there was father Adolf (1836-1908) and son Günther (1875-1959) Thiem, who both were very active in developing groundwater resources for many cities in Germany and beyond in central Europe. The ‘Thiem Equation’ is often attributed to Günther Thiem (1906), but actually his father already published it earlier (1870), while the latter was aware of the work and very similar equation of Dupuit (1863). Likely, very few hydrologists have ever read the publications of the Thiem’s, including the one generally referenced for the equation. In this poster we will elucidate: Who were the Thiem’s? What work did they do? What did their publications say? How well did they know the work of Dupuit? Should we make a differentiation between the Dupuit equation and the Thiem method? What has been their influence and legacy in hydrogeological science and practice?

Adolf Thiem was an autodidact and worked from 1868 in Basel and Dresden together with Heinrich Gruner as consultant for city water supply and drainage. In 1870 he published his most well-known paper ‘The yield of artesian wells, shaft wells and filter galleries’. In 1875 he started his own water supply consultancy firm in Regensburg, which was moved in 1886 to Leipzig, where his son Günther led the firm after his death. Adolph Thiem, called the ‘father of groundwater research’, has been credited with being the strongest advocate and transformer of German urban water supply from being originally mainly reliant on surface water to the much cleaner groundwater (for at least 50 cities as well as for several abroad). He developed theoretical and technical methods for groundwater resources exploration and exploitation, as e.g. use of piezometric maps (1874), pump and tracer tests, artificial recharge (City of Essen), use of cast iron for wells (1881), use of tube wells in general and in particular for drainage of building pits. He also made inventions like a closed pipe flow meter. Together with Günther he developed the Epsilon-method, which allowed estimating groundwater resources in short time at lower cost than with the traditional pump tests. Günther followed in the footsteps of his father in combining groundwater science and practice. He studied civil engineering in Leipzig, and worked after his studies for three years in the USA, India and Egypt. In 1906 he obtained a PhD from the Technical University of Stuttgart under supervision of Professor Lueger on basis of a 45 pages dissertation, titled ‘Hydrological methods’ in which he details investigations for the groundwater supply for the city of Prague and the neighbouring Elbe valley towns. After O.E. Meinzer, chief of the USGS Ground Water Division, visited Germany and met Günther Thiem, Leland Wenzel (1932, 1936) made the Thiem method for aquifer pump test analysis popular in the US with the first full-scale pumping test at Grand Island (1931).