abstract

Water is one of, if not the most valuable natural resource but extremely challenging to manage. According to old research in the field, many Water Distribution Systems (WDSs) around the world lose above 40 percent of clean water pumped into the distribution system because of unfortunate leaks before the water gets anywhere from the fresh water resources. By reducing the amount of water leaked, distribution system managers can reduce the amount of money, resources, and energy wasted on finding and repairing the leaks, and then producing and pumping water, increase system reliability and more easily satisfy present and future needs of all consumers. But having access to this information pre-amatively and sufficiently can be complex and time taking. As the cost of servicing water being transported underground, sewage and fuel servicing going dramatically high in the past couple of decades, the demand is growing for improved utility, locating, inspection, characterization and monitoring technologies for underground leaks. For large companies like SRP who are moving tonnes of water from various water bodies around phoenix area, it is even more crucial to efficiently locate and characterize the leaks. And phoenix being a busy city, it is not easy to go start digging everywhere, whenever a loss in pressure is reported at the destination. Keeping this in mind, non-invasive methods to geo-physically work on it needs attention. There is a lot of potential in this field of work to even help with environmental crisis as this will also help in places where water theft is big and is conducted through leaks in the distribution system.