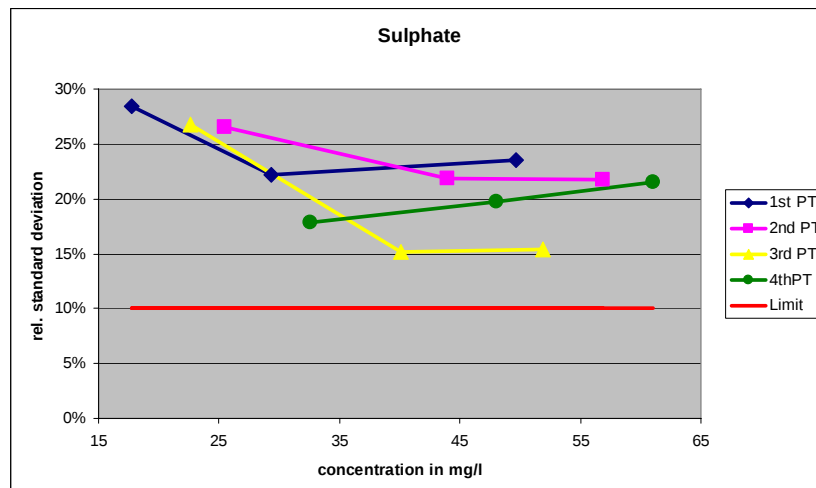


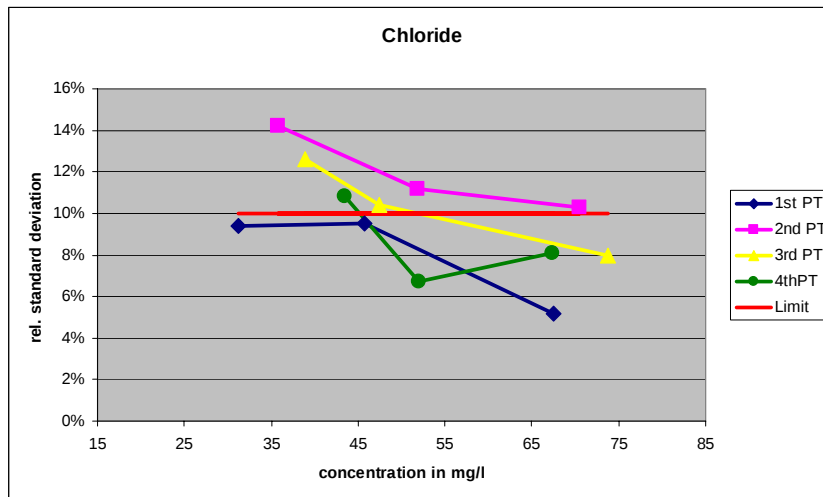


Development of Standard Deviations over the 4 PT rounds

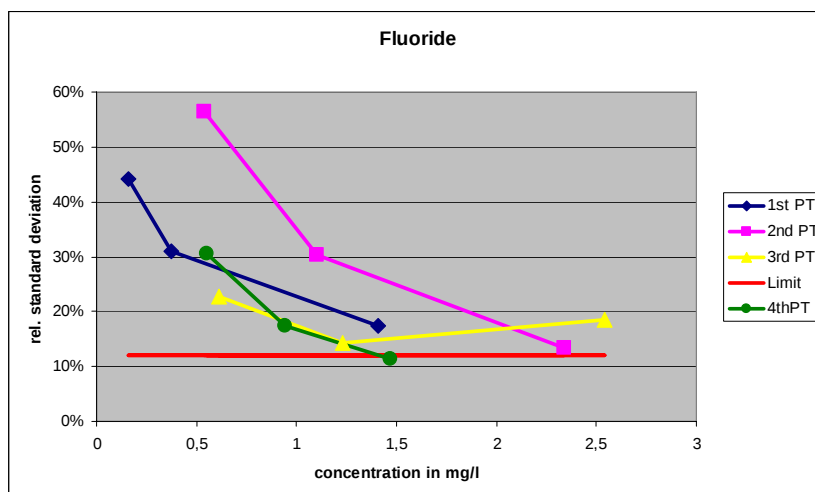
Dr.-Ing. Michael Koch

Institute for Sanitary Engineering, Water Quality and Solid Waste Management
Universität Stuttgart
Dep. Hydrochemistry
Bandtaele 2
70569 Stuttgart GERMANY
Tel.: +49 711 685 65444 / Fax: +49 711 685 67809
e-mail: Michael.Koch@iswa.uni-stuttgart.de



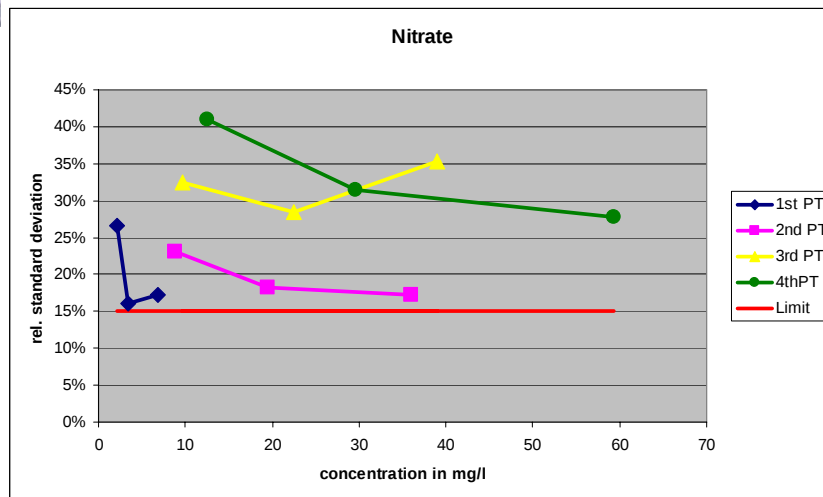


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam

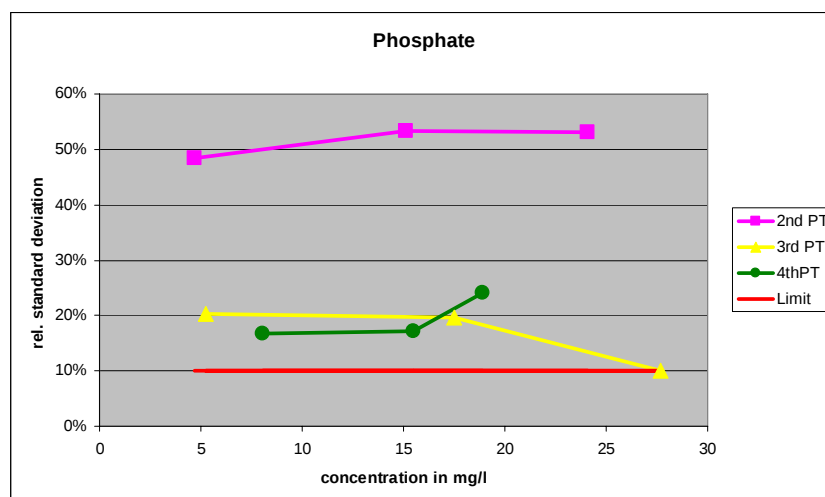


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam



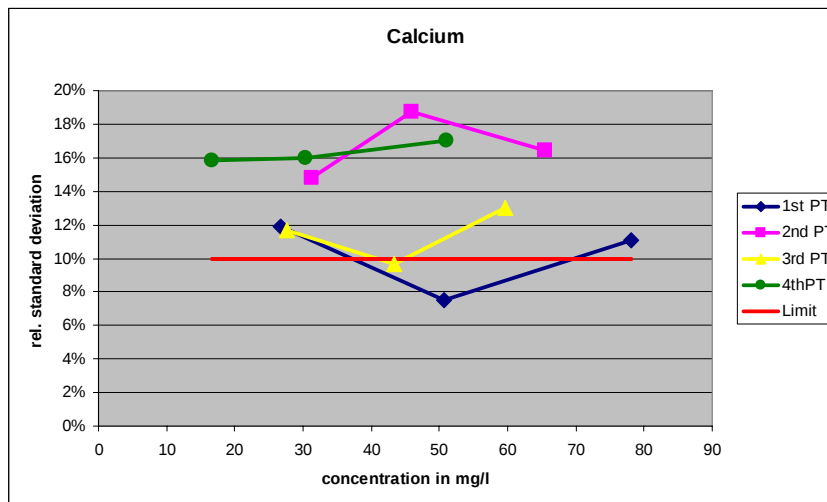


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam

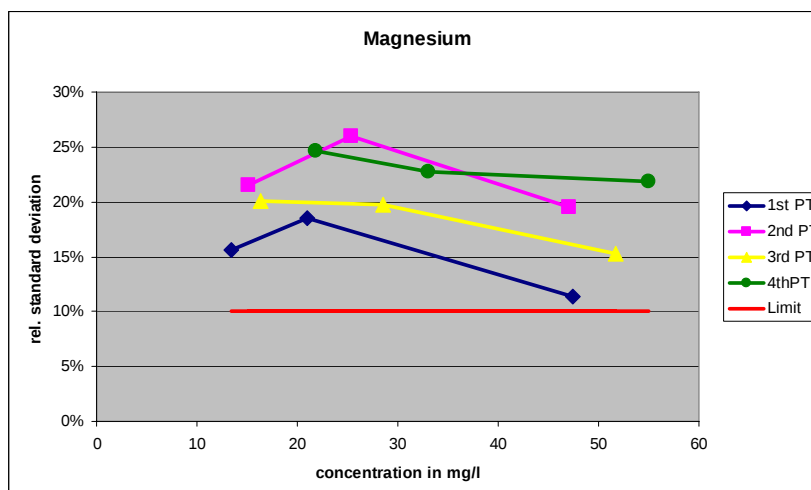


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam



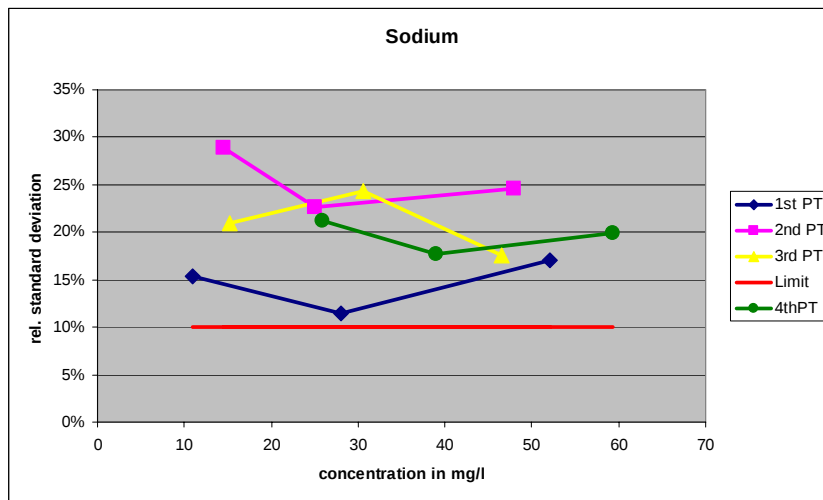


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam

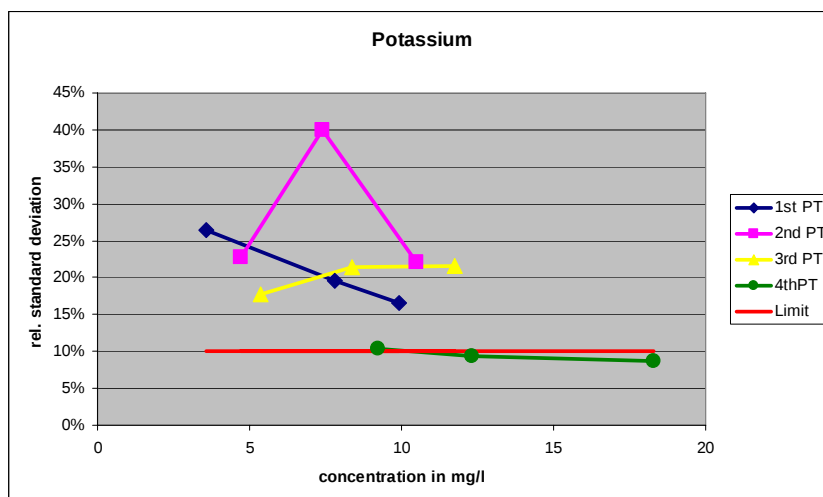


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam



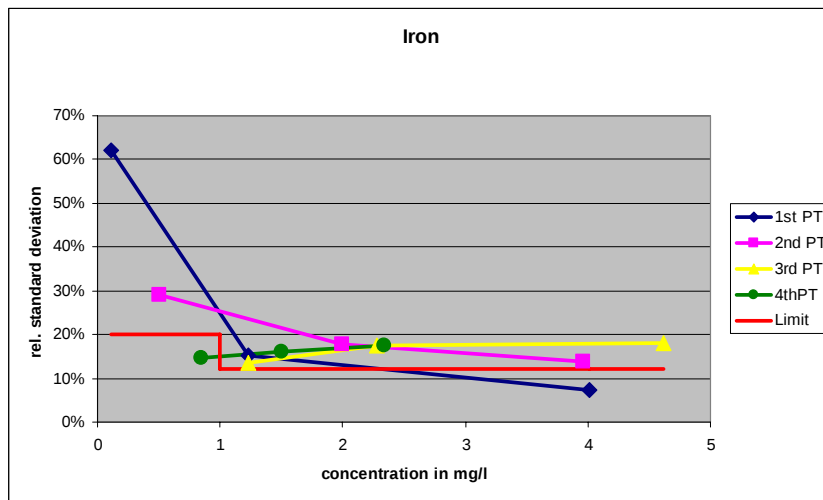


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam

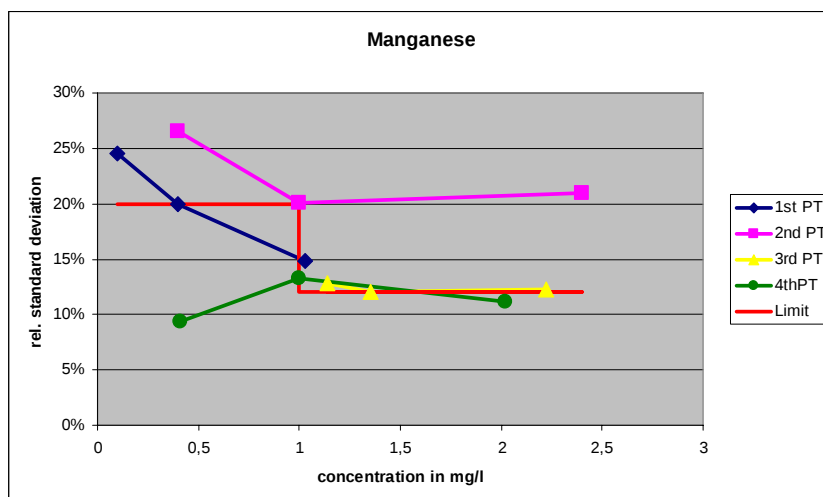


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam



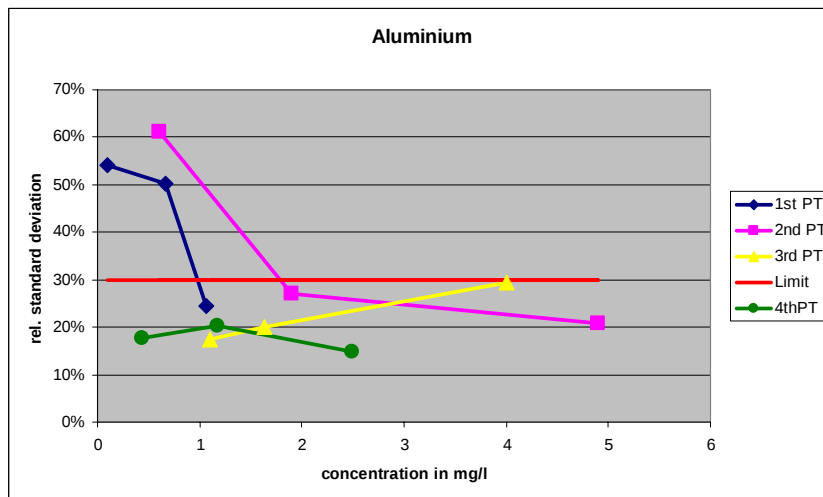


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam

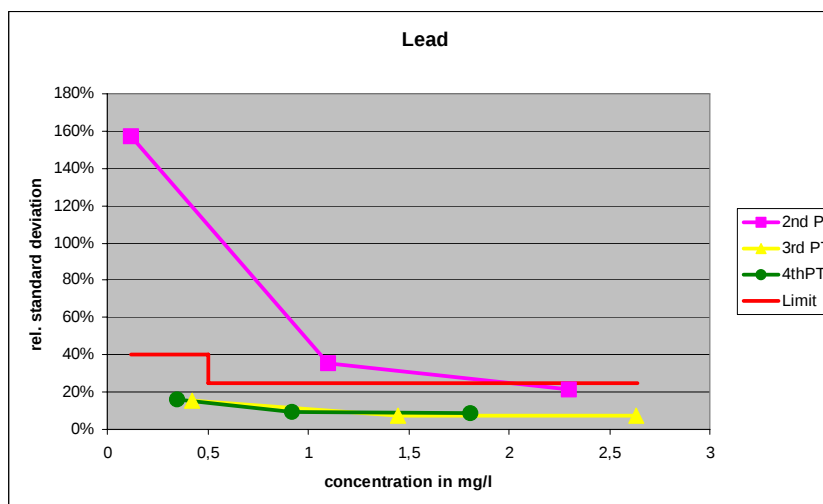


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam



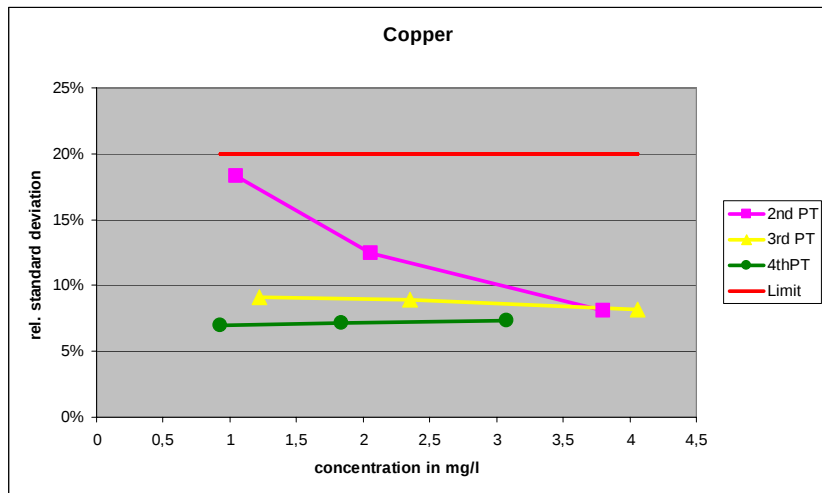


Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam

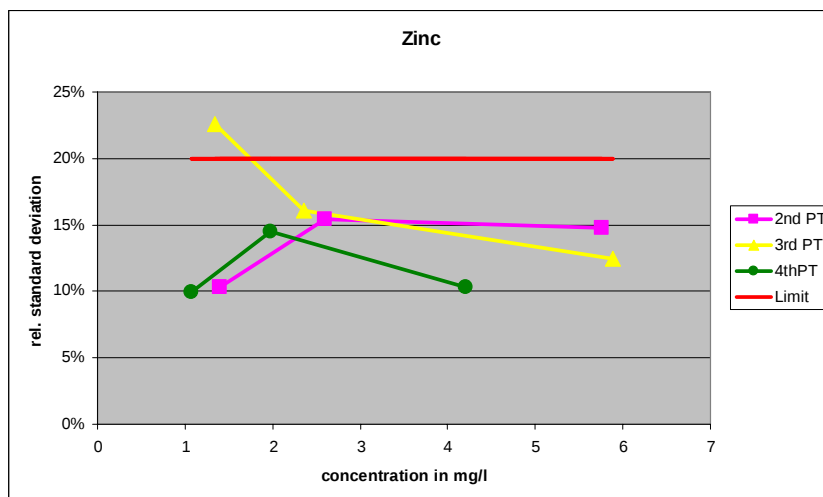


Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam



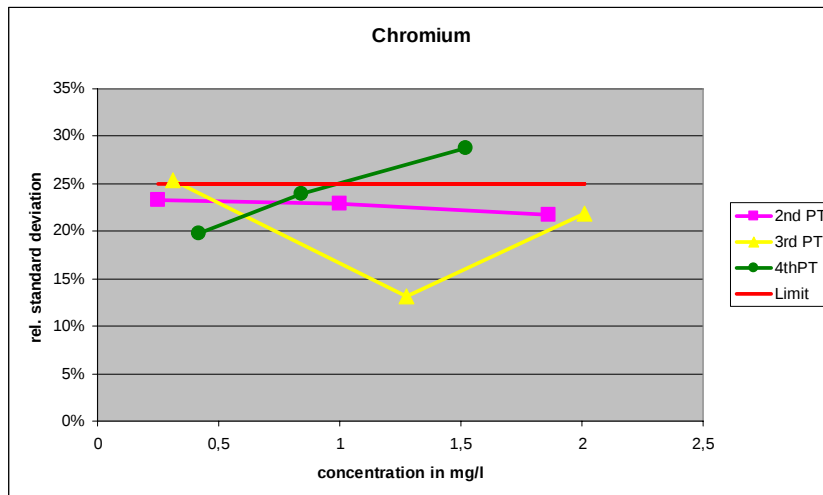


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam

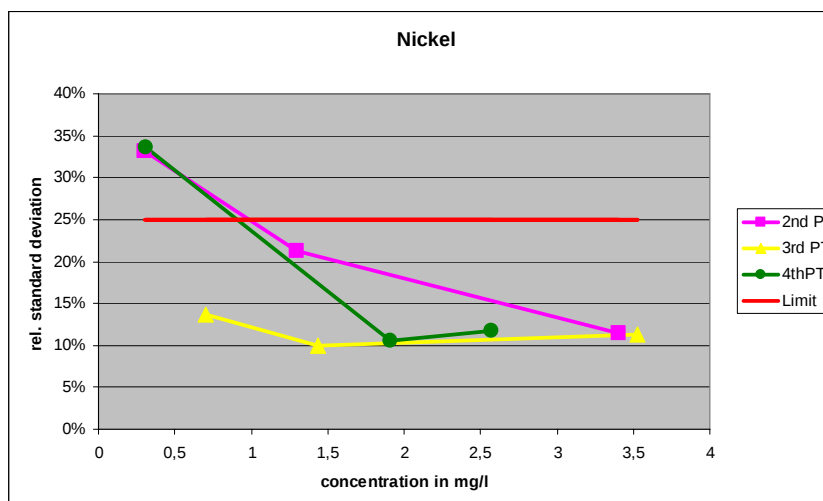


Koch, M.: Development of Standard Deviations – SADCMET PT Workshop 2007 Dar es Salaam



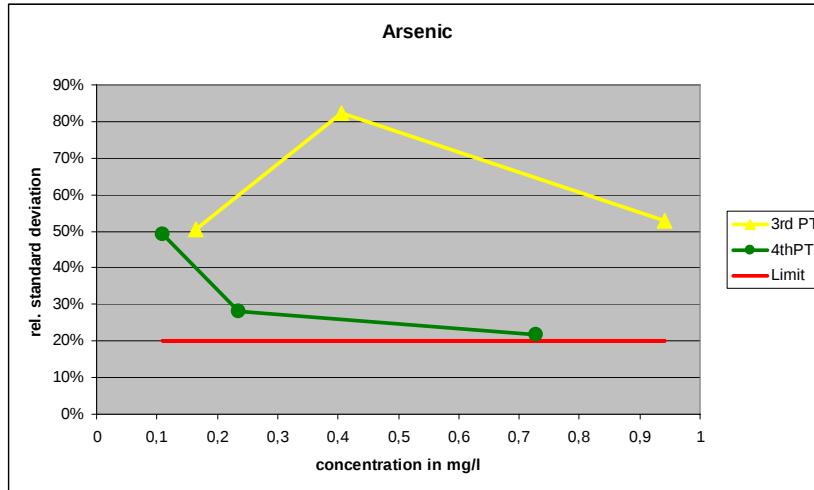


Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam

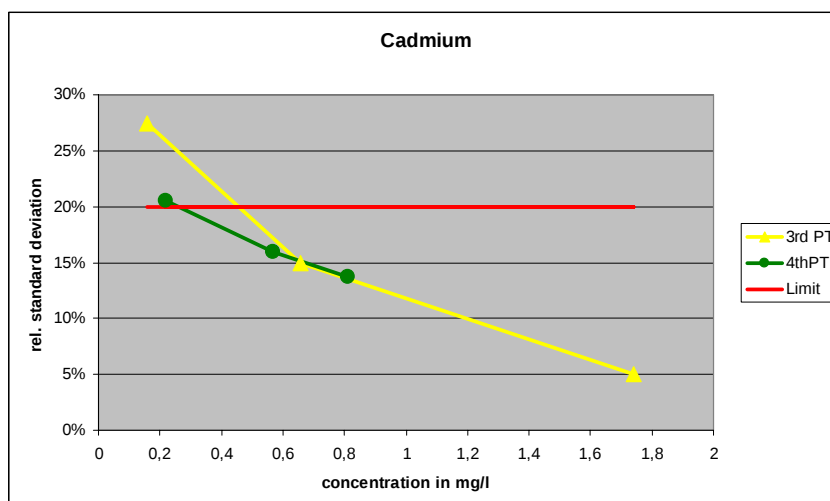


Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam





Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam



Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam





Compared to previous PT rounds

- better:
 - potassium, arsenic
- no change:
 - sulphate, chloride, fluoride, phosphate, sodium, iron, manganese, aluminium, lead, copper, zinc, chromium, nickel, cadmium
- worse:
 - nitrate, calcium, magnesium,



Compared to our own quality standards

- good
 - aluminium, lead, copper, zinc
- still acceptable
 - chloride, potassium, iron, manganese, chromium, nickel, cadmium
- not acceptable
 - fluoride, arsenic
- bad
 - sulphate, nitrate, phosphate, calcium, magnesium, sodium
- Are we satisfied with our quality standards?



Our own quality standards - are they still fit for the purpose?

parameter	limit
Sulphate	10%
Chloride	10%
Fluoride	12%
Nitrate	15%
Phosphate	10%
Calcium	10%
Magnesium	10%
Sodium	10%
Potassium	10%
Iron	<1 mg/l: 20%, >1mg/l: 12%

parameter	limit in %
Manganese	<1 mg/l: 20%, >1mg/l: 12%
Aluminium	30%
Lead	<0,5 mg/l: 40%, >0,5 mg/l: 25%
Copper	20%
Zinc	20%
Chromium	25%
Nickel	25%
Arsenic	20%
Cadmium	20%

Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam



The main question

- Why can't we see a clear improvement after 4 PT rounds?

Koch, M.: Development of Standard Deviations – SADC MET PT Workshop 2007 Dar es Salaam

