

MST1 tokamaks operational boundaries

ASDEX-upgrade

ASDEX Upgrade with its all tungsten plasma facing components plays an important role as a medium sized counterpart to JET specifically for experimental investigations which rely on all metal plasma facing components. In 2015, AUG experiments will benefit from the installation of two new three-strap ICRF antennas that will allow a more efficient use of ICRF by minimizing the source of W through the reduction of the rectified RF sheath.

It is expected that the MST1-AUG campaign will start on 8 June 2015 and will last until 29 April 2016 (with no operation in August). Note that the AUG restart will be on 22 May and will last 2 weeks.

General information about AUG can be found on the MST1 wiki pages:

http://users.euro-fusion.org/iterphysicswiki/index.php/WPMST1_2014_AUG

More information about the 2015-2016 machine status can be found in Arne Kallenbach's presentation at the General Planning Meeting (Lausanne, 19-23 January 2015)

http://users.euro-fusion.org/iterphysicswiki/images/4/49/GPM15_19Jan_Kallenbach.pdf

Operational boundary conditions have been of course taken into consideration when building the timeline. Boronisation will be regularly performed (flagged in a lighter blue in the timeline – Annex 3). Experiments requiring high NBI power (>18MW) or high shaping, hence a special power supply configuration are to be performed in weeks flagged as “reduced V2 PF-coils”. The midplane manipulator (Langmuir probe, Mach, FILD, RFA, Ball-pen, ExB probes) and divertor manipulator requirements have been taken into consideration.

AUG operates 2 days (Tuesday & Thursday) or 3 days (Tuesday, Thursday & Friday) a week. The MST1-AUG experimental program is currently based on 48 MST1 days (28 in 2015 and 20 in 2016; assuming 16 pulses/day). The IPP internal program and MST-AUG programs will be run in parallel.

TCV

TCV, which allows investigations of variable-shaped plasmas and of the snowflake divertor, is undergoing a major upgrade in heating power. During the year 2015, a new NBI system will be installed and commissioned. Nevertheless, the guaranteed heating power during the 2015 experimental campaign will be provided only by the ECRH system (2.5 MW available). During the 2016 part of the experimental campaign, it is foreseen that the new NBI capability will become available (1 MW) as well as extra ECRH power (up to 4MW total by the end of 2016).

It is expected that the MST1-TCV campaign will start on 5 October 2015 and will last until 29 April 2016.

General information about TCV can be found on the MST1 wiki pages:

http://users.euro-fusion.org/iterphysicswiki/index.php/WPMST1_2014_TCV

More information about the 2015-2016 machine status can be found in Stefano Coda's presentation at the General Planning Meeting (Lausanne, 19-23 January 2015)

http://users.euro-fusion.org/iterphysicswiki/images/a/a3/GPM15_19Jan_Coda.pdf

TCV operated 4 days (Tuesday to Friday) per week and is typically 1 week off for 3 weeks on. The MST1-TCV experimental program is currently based on 45 days (20 in 2015 and 25 in 2016, assuming 26 pulses /day).